

BROADBAND NETWORKS

AT&T lights the way to dark fiber

BY DAVID ROHDE

New York

While MCI Communications Corp. and Sprint Corp. loudly promote future schemes to bypass local telephone companies, AT&T is already helping big users do just that.

AT&T's Networking Systems division is enjoying a burgeoning business, selling fiber termination equipment to users that are installing their own carrier-style fiber rings or purchasing dark fiber from specialty suppliers.

Already heavily entrenched among users in the electric utility industry, AT&T now hopes to make big inroads in the financial industry here as the preferred equipment vendor to customers of National Fiber Network, Inc. (NFN), a new dark fiber supplier.

The bonanza for users: an end run around local exchange carriers (LEC) to obtain virtually unlimited capacity, with no variation in cost as bandwidth needs change.

For example, NFN is leasing dark fiber capable of carrying the equivalent of 48 T-3 channels at \$140 per mile per month.

Since dark fiber comes with none of the electronics needed to transmit data or voice, the user must install much the same type of

See Dark fiber, page 8

Judgment day for Novell

No margin for error with NetWare 4.1.

BY MARGARET DORNBUSCH,
KEVIN FOGARTY AND PEGGY WATT

Provo, Utah

Novell is releasing NetWare 4.1 on Pearl Harbor day, but it's really D day for the LAN leader.

NetWare 4.1 is, by early indications, a robust and capable new version of Novell's flagship product, analysts said. But the company made several false starts in the initial development and release of NetWare 4.0 18 months ago, giving competitors time to cut into NetWare's market share. Now Novell needs a successful launch to regain momentum.

Some users and analysts said 4.1 overcomes the highest hurdles customers face in upgrading to 4.X, but others remain unconvinced and cite application compatibility issues, among other concerns.

According to William Donahoo, director of product

marketing for Novell, the new version is more stable and makes a number of tasks easier than with 4.0, including the conversion to NetWare Directory Services (NDS), remote administration and NDS reconfiguration. It also includes tools to help users migrate from 3.X and competing network operating systems (NOS), and lets users

See NetWare 4.1, page 72

Novell tool could swing Banyan users from VINES.

BY KEVIN FOGARTY

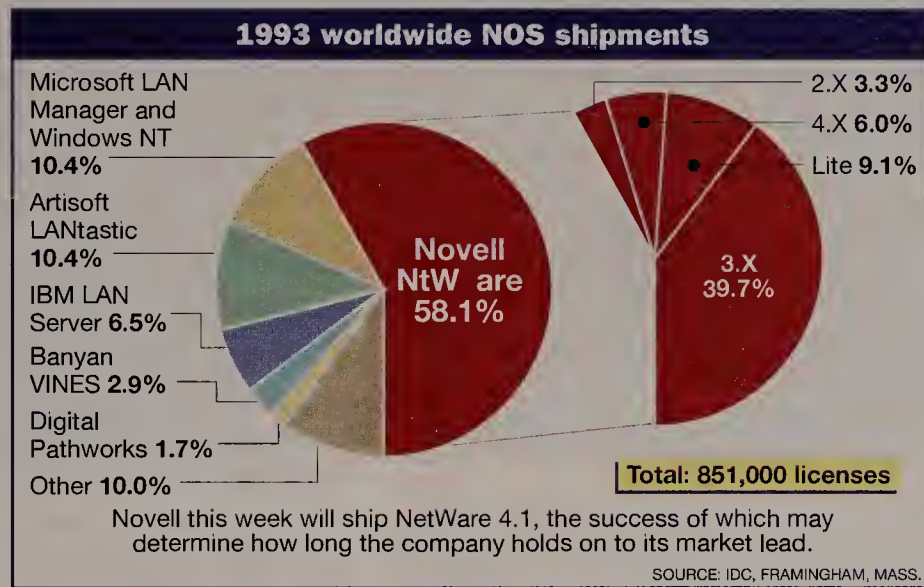
Provo, Utah

When NetWare 4.1 hits the street this week, Novell, Inc. will be looking not only for NetWare customers to upgrade, but also for Banyan Systems, Inc. VINES users to march over to the NetWare camp.

Novell will offer free of charge a utility that converts files and directory information in VINES to NetWare 4.1's file and directory formats. The utility is an extension of Novell's Migrate.EXE, designed primarily to help users upgrade to new versions of NetWare as they are developed.

Over the years, many VINES users have been reluctant to move to NetWare, pointing to Novell's lack of directory services functionality as compared to Banyan's respected StreetTalk offering. However, VINES users may be ready to

See Banyan, page 72



No spectrum is sacred as FCC begins auctions

BY ELLEN MESSMER

Washington, D.C.

The Federal Communications Commission this week will begin auctioning off radio spectrum to industry bidders eager to acquire all the bandwidth they can for new wireless services.

The auctions, expected to net \$10 billion for the U.S. Department of the Treasury by the time they end, will force the eviction of hundreds of microwave users in the 2-GHz bands. But these users — many from utility companies — are getting off easy. Future spectrum auctions are expected to be even more harsh on

government microwave users and users of unlicensed data equipment.

The microwave users that find their spectrum purchased next week for new personal communications services (PCS) have to be compensated for their relocation costs by the winning bidders.

Thirty bidders, mostly organized into consortia, are well heeled and have already put up more than \$500 million in advanced payments to the FCC.

Sprint Corp. is leading one telecommunications consortium, while several cable TV

See Spectrum, page 71

Cisco carves topology data path

BY JIM DUFFY

San Jose, Calif.

Cisco Systems, Inc. is working to create a standard for extracting network configuration information from disparate management tools and network devices, according to sources familiar with the effort.

The objective is to present this information in a common way that would help users better document network resources and easily transfer information within their organization, or to service and support providers, sources said.

The router vendor has contracted with Steve Waldbusser, manager of network development at Carnegie Mellon University in Pittsburgh, to draft a white paper for a standard ASCII format to compile and export such network topology information.

See Cisco, page 71

See Me
Hear Me
VIDEOCONFERENCING

Our investigation of two alternatives for point-to-point videoconferencing with electronic whiteboards uncovers many features that need improvement. Page 47.

NETWORK
WORLD
TEST
alliance



Apple's Michael Spindler, IBM's Ellen Hancock, AT&T's Pat Russo and Peter Pribilla of Siemens Rolm last week started a standards charge, but not everyone is following. See story, page 6.

Briefs

Sybase loads up warehouse strategy. As expected, Sybase, Inc. last week announced Warehouse Works, a product suite designed for building a data warehouse (NW, Nov. 28, page 1). The offering includes the SQL Server System 10 database, the Interactive Query Accelerator, plus the company's Enterprise Connect gateways. Warehouse Works will ship in the summer of 1995; pricing was unavailable.

Sybase: (510) 922-3500.

SITA expansion. The SITA Group announced plans last week to enhance its worldwide data communication network, which is used mainly by airlines, to provide switched voice service. SITA plans to install three central office switches this spring — in the U.S., Europe and Asia Pacific — and start offering the service in those areas in the second half of next year. SITA intends to expand the geographic area served as regulations allow. The group will also explore installing Asynchronous Transfer Mode gear by 1996.

SITA: (404) 850-4500.

Above and Beyond. Banyan Systems, Inc. last week announced application program interfaces for linking desktop applications to back-end networked services via its BeyondMail rules and forms technology. Collectively dubbed BeyondWare, the APIs let developers connect a variety of groupware and database tools atop Banyan Intelligent Messaging and Novell, Inc. Message Handling Service messaging networks.

Also last week, Banyan announced a remote version of BeyondMail.

Banyan: (508) 898-1000.

Pulling the plug. Reports surfaced last week that Hewlett-Packard Co. is pulling its SNA Node Manager product off the market because the company lacks the expertise to provide technical support for it. SNA Node Manager is an IBM SNA network management application for HP's OpenView platform that's based on Peregrine Systems, Inc.'s OpenSNA product. HP and Peregrine are reportedly hammering out an arrangement whereby Peregrine would assume support of current SNA Node Manager customers. Both companies declined to comment.

Separately, recent layoffs at Peregrine have cast doubt on the company's commitment to continued development of OpenSNA and its NetWare management products. But Chuck Rudolph, Peregrine's director of marketing, said the company is not "de-emphasizing" these products.

Toll-free tally. AT&T set a new record on Monday, Nov. 28, handling a total 216.2 million calls in one 24-hour period. More remarkable, a whopping 37.4% of the calls — 80.9 million in all — were placed on toll-free 800 numbers.

**Total calls:
216.2 million**

**Toll-free
calls
37.4%**

Movin' on from Microsoft. Tom Evslin, who had overseen development of Microsoft Corp.'s Exchange and Back Office messaging and workgroup software, resigned last week to take a job as vice president of software support services at AT&T. He will help oversee development of multimedia software at the carrier.

Objectivism. The Object Management Group's (OMG) board of directors will decide this week on interoperability specifications for its Common Object Request Broker Architecture. An OMG technical committee recently voted 3-1 in favor of a TCP/IP-based approach from a group headed by SunSoft, Inc., which also includes Microsoft Corp. and Novell, Inc.

HP price slide. Hewlett-Packard Co. last week cut prices up to 22% on its NetServer PC servers and up to 26% on its Vectra desktop PCs. The reductions are part of a program designed to expand HP's distribution through value-added resellers.

HP: (800) 752-0900.

Parallan-Meridien merger. Superserver maker Parallan Computer, Inc. of Mountain View, Calif., merged last week with Meridien Data, Inc., a Scotts Valley, Calif., CD-ROM developer. Parallan, which originally sold systems and software under the IBM name, will acquire Meridien for \$19 million. The combined firm will take on Meridien's name next year and focus on the fast-growing CD-ROM networking and multimedia market.

For details on how to reach us, see page 73.

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Pack of three vendors offers up a plethora of new LAN switches. *Page 8.*

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Slew of announcements were made by HP, Novell individually, while others paired up at last week's show. *Page 12.*

ENTERPRISE INTERNETWORKS

IBM offers new LAN adapter that will let users link LANs to IBM mainframes without additional controller or router devices. *Page 17.*

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Vendor snapshot



Oracle eyes new domains to expand its Unix database kingdom. But before the vendor can conquer new high-growth markets, it must shore up weaknesses in interoperability and roll out development tools.

Network **HELP** desk

Network World tracks down answers to your questions regarding products, services, technologies or disputes with vendors. Please submit questions to Alison Conliffe at (800) 622-1108, via fax at (508) 820-1103 or (508) 820-3467, via the Internet at aconliff@world.std.com or via CompuServe at 75471,2725.

Our company is looking for an integrated mail system for our Unix processors. Is there a Simple Mail Transfer Protocol mail package that can be installed on Sun Microsystems, Inc., Hewlett-Packard Co., IBM and other Unix machines?

Byron Bai, via the Internet

Pete Pedersen, a network design analyst and messaging systems engineer with the Dallas division of network integrator Parinet, Inc., responds:

In building a corporate backbone based on SMTP, you should consider several things, chief among them the user interface or front-end application. Z-Code Software, based in Novato, Calif., makes Z-Mail, one of the most popular user interfaces that meets your requirements. It provides a rich set of user tools for graphical user interfaces, including support for a wide variety of attachments and

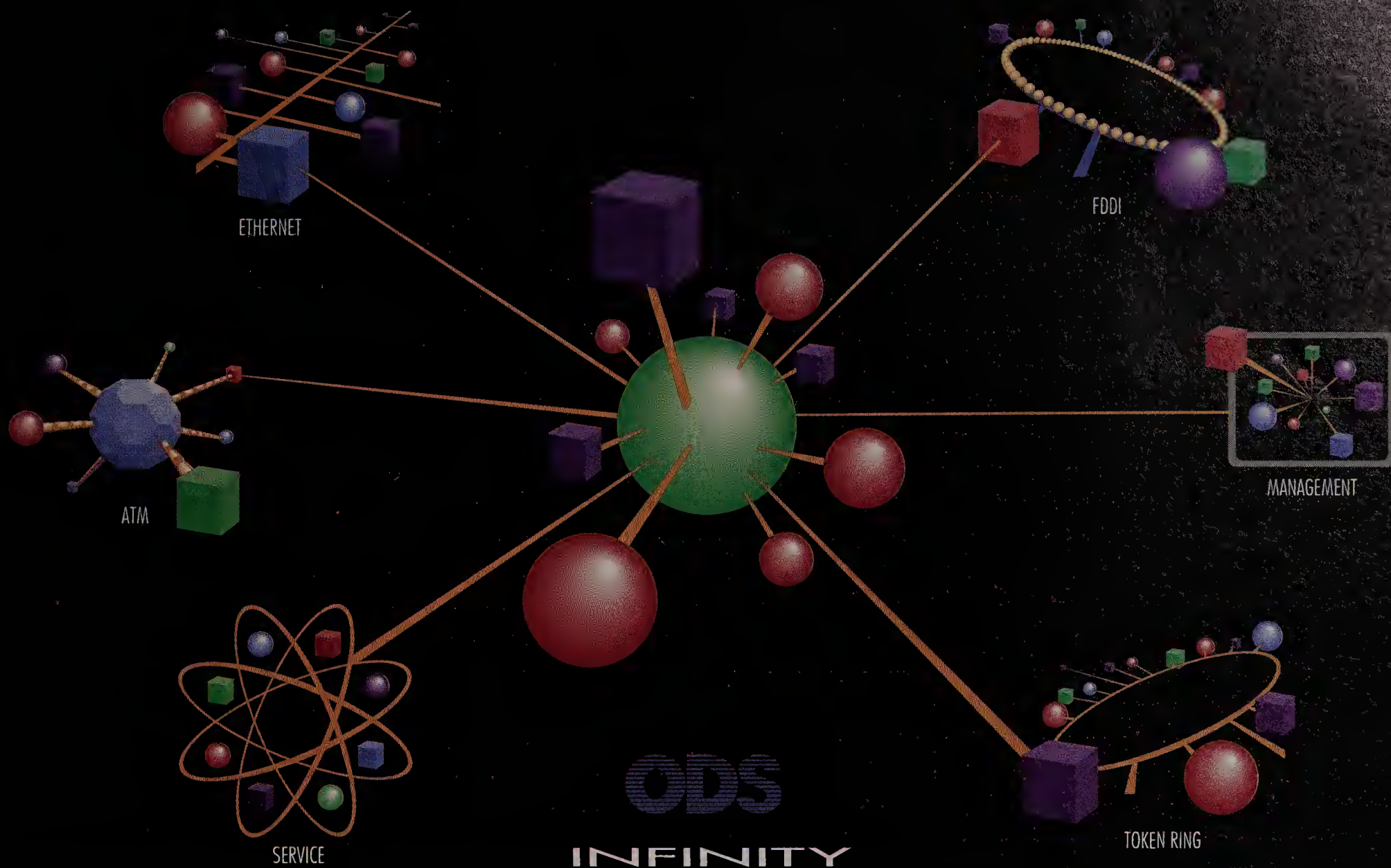
rules-based message management. Other contenders are Siren Software Corp.'s SirenMail and Syntax Corp.'s TotalMail.

Another important consideration is the corporate directory, and its synchronization across servers and locations. A backbone product such as Control Data Systems, Inc.'s MailHub may be ideal if you are going to use disparate E-mail systems, since it can integrate user agents from all systems. With a single mail protocol such as SMTP, you could use the native lookup features of Unix to provide directory services. Z-Mail provides a directory agent that can query the Yellow Pages, local services or an X.500 service.

Outside of directory service, you might also want to look at the integration of calendaring and scheduling, out-of-office notification and other workgroup applications. WordPerfect Corp.'s Symmetry provides those features plus a directory, rules-based message management and mailing list functions.

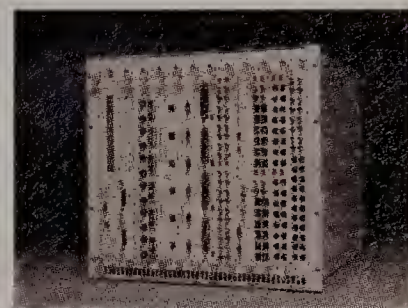
As the person responsible for implementing a corporatewide system, your most important job will be planning. There are many pitfalls in messaging systems, most of which are created by corporate cul-

See Help desk, page 44



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September 6, 1993

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Circle Reader Service #31

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Start-up targets application mgmt.

BY MARGARET DORNBUSCH

Los Altos, Calif.

Start-up CoroNet Systems is readying a set of tools for monitoring the effect databases and other applications have on overall network performance.

The company, founded last year by former Network General Corp. executive Pierre de la Salle, plans to release its initial Windows-based management tools in the first quarter of 1995.

The central offering is the SuperMonitor management system, which collects application performance data via its complementary CoroNet applications or through third-party network analyzers.

SuperMonitor applications include Single View, which uses proprietary technology to conduct real-time performance monitoring of client/server and distributed TCP/IP-based internet applications, and Quick Model, which provides net managers with what-if projection capabilities and automatically suggests optimal configurations.

The software can run by itself or in conjunction with net management platform software such as Hewlett-Packard Co.'s HP OpenView, said Asheem Chandra, CoroNet's marketing vice president.

While many vendors have addressed network and system management, few have focused on application management, industry observers said.

"You have to rely on whatever hooks the database management system vendor puts in to monitor the

database," said Paul Mason, an analyst with International Data Corp. in Framingham, Mass. "That doesn't necessarily tell you everything you need to know about how the application is running."

To further development of its application monitoring product, CoroNet in June 1994 received a total of \$2.5 million from three venture capital firms: Banque National de Paris, Hummer Winblad, and Kleiner, Perkins, Caufield and Byers.

While CoroNet's product can examine packets, CoroNet will not compete with Network General's Sniffer products, which capture and analyze packet information to diagnose network protocol problems, Chandra said.

However, an add-on product developed by Optimal Networks of Mountain View, Calif., in conjunction with Network General and due out in the first quarter of 1995, will take Sniffer data and ana-

lyze application performance.

Management vendors today provide a lot of bit- and byte-level information through packet analyzers and Remote Monitoring (RMON) tools, but nobody knows how applications affect network performance, Chandra said.

"RMON looks at the trees," he said. "We give you the forest."

Chandra said BGS Systems of Waltham, Mass., this week will announce plans to resell CoroNet's software as part of its management tools package.

©CoroNet: (415) 960-3255.

CoroNet profile

Based:	Los Altos, Calif.
Founded:	Second half 1993
Founders:	CEO Pierre de la Salle, formerly of Network General, and President and COO Michael Laven, formerly of Ingres
Primary products:	Application-monitoring software
Employees:	8
Funding:	Initial round of \$2.5 million provided by Kleiner, Perkins, Caufield and Byers, Hummer Winblad and the Banque National de Paris.

America Online buys Internet service provider

BY ELLEN MESSMER

Vienna, Va.

America Online, Inc. (AOL) last week vaulted to the top ranks in the Internet services market by announcing its intent to purchase the network assets and customer base of Internet backbone provider Advanced Network & Services, Inc. (ANS).

AOL, which offers subscribers dial-up services such as conferencing, bulletin boards and electronic newspapers, recently added Internet access services and support for file transfer and telnet.

AOL, which is paying \$35 million for ANS, will use the 15-node T-3 backbone net to handle growing Internet traffic from its subscribers, mostly residential customers. But Mike Connors, AOL executive senior vice president, said the firm will continue to provide the high-bandwidth TCP/IP services ANS provides to its growing corporate base.

ANS customer reaction to the AOL purchase of ANS has ranged from cautious acceptance to enthusiasm. "We're very comfortable with it," said David Norton, systems strategist at Trane Co. Trane has connected 120 sales offices and about a dozen manufacturing

sites over a private TCP/IP net tied into the ANS backbone.

While basically satisfied with ANS, Norton said ANS is growing so rapidly it cannot accommodate some outsourcing demands, such as installing end-user graphical interfaces for Internet browsing.

"They're Internet weenies, basically, and it's hard for them to deal with the really simple questions from end users," said Norton. "AOL, which is much their cultural opposite, will bring a lot of experience in dealing with the public."

AOL, which delivers its existing services over an X.25 backbone operated by Sprint Corp., has 1.25 million users, a base growing at 10% per month.

ANS was launched four years ago as a nonprofit organization founded by IBM, MCI Communications Corp. and Merit, Inc. to operate a nationwide T-1 backbone network for the Internet, largely subsidized by the National Science Foundation (NSF), a federal government agency.

Only research and education traffic was permitted on the federally subsidized backbone, used mainly to link regional 'Net providers operated by universities. The NSF later agreed to let ANS carry commercial traffic on the backbone through a separate sales unit.

"They're Internet weenies, basically, and it's hard for them to deal with the really simple questions from end users."

The university-based regionals, which still receive NSF subsidies, are migrating their traffic to a TCP/IP backbone operated by MCI and should be fully cut over by next spring. But in the last few years, ANS has won several new corporate customers.

"America Online is going to be playing hardball in this market," said Glen Gabriel Ben-Yosef, a senior analyst with The Yankee Group consultancy. "They're purchasing one of the great IP backbone providers."

Connors said AOL wants to expand on the list of commercial services offered by ANS. AOL, for example, will begin installing World-WideWeb server sites for organizations. □

3Com unveils plan for multilevel switching

BY JODI COHEN

Santa Clara, Calif.

3Com Corp. today will announce an 18-month rollout plan for switching products and the first deliverables, the new LANplex 2000 Series of switching hubs.

The product road map addresses switching at many levels and ultimately will see the introduction of products for collapsed backbones and, in workgroup settings, switches for Ethernet, token ring, Fiber Distributed Data Interface, fast Ethernet and Asynchronous Transfer Mode.

"The more options you provide people and the more flexible the line, the stronger your position will be in the market," said Mary Petrosky, analyst at The Burton Group in Salt Lake City.

The first product to be rolled out will be the LANplex 2000 Series, which includes the LANplex 2500 and 2016 switching hubs. They are designed for low-density, cost-sensitive workgroups and small collapsed backbone environments.

3Com's switching product road map

Departmental offerings		Data center offerings	
LinkSwitch (Stackable LAN switch):		LANplex 6000 (Modular LAN switch):	
Ethernet and FDDI switching	Now	Ethernet and FDDI switching	Now
Ethernet and ATM switching	2Q 1995	FDDI concentration	Now
Ethernet and fast Ethernet switching	Late 1995	Ethernet and FDDI switching	1Q 1995
Token-ring and ATM switching	Early 1996	Token-ring and FDDI switching	Late 1995
Token-ring and FDDI switching	Early 1996	Ethernet and 100Base-T switching	Late 1995
LANplex 2000 (Modular LAN switch):		FDDI switching	
Ethernet and FDDI switching	1Q 1995		Late 1995
ATM uplink	Late 1995	ATM uplink	Late 1995
Fast Ethernet	Late 1995		
CellPlex 1200 (Modular ATM switch):		CellPlex 2000 (Modular ATM switch):	
Ethernet and ATM switching	2Q 1995	ATM switching	2Q 1995

The LANplex 2500 features a chassis-based modular design that supports as many as 16 switched 10M bit/sec Ethernets and two switched FDDI high-speed ports. The LANplex 2016 is identical to the 2500, except it does not offer high-speed ports.

The hubs use 3Com's Intelligent Switching Engine chip, which is based on application-specific integrated circuit technology, for switching, bridging and integrated routing. The products offer a packet-forwarding rate of more than 565,000 packets per second.

John Morency, principal at Strategic Networks Consulting, Inc. in Rockland, Mass., said 3Com has considerably driven down cost in the industry. "3Com offers one of the best price/performance boxes on the market."

3Com, which has 32% of the LAN switching hub market, puts its LANplex 2500 up against FDDI-based switches like Cisco Systems, Inc.'s Catalyst and Alantec Corp.'s Alantec 3000.

Both LANplex switches also compete with Ethernet workgroup switches

from Kalpana, Inc. and Standard Microsystems Corp.

The LANplex 2000 Series switches are managed by 3Com's Transcend network management product. The switches also use a roving analysis feature that allows external network analyzers and Remote Monitoring probes to analyze traffic from any LANplex switched port. The capability can be used on any number of the switched Ethernet segments or across multiple switches.

Morency said what separates 3Com from the pack is a watchdog function that is buried in the microcode. If a LANplex 2000 Series switch gets hung up, it will automatically restart.

"Network managers are just so smoked with the base platforms and the management applications that anything you can just plug in, has high performance, high availability and takes care of itself when it hiccups is good news," he said.

Morency said the products could be 3Com's key success in switching.

"LANplex may be the product that allows 3Com to get their foot in the door of what otherwise may be total Cisco or Bay [Networks, Inc.] shops," he said.

3Com will begin shipping the LANplex 2500 and LANplex 2016 switches in the first quarter of 1995. Pricing for the LANplex 2500 configured with 16 switched Ethernets and one FDDI port starts at \$14,395. The LANplex 2016 configured with 16 switched Ethernets starts at \$8,995.

©3Com: (800) 638-3266.

CORRECTION

A recent Internet Tip (NW, Nov. 28, page 7) may have caused some confusion because of the period used to end the sentence providing an address for a guide to E-mail use of Gophers, World-Wide Web servers and other Internet resources. Write to listserv@ubvm.cc.buffalo.edu (no period after edu). As your message, write GET INTERNET BY EMAIL NET-TRAIN F=MAIL (no period after MAIL).

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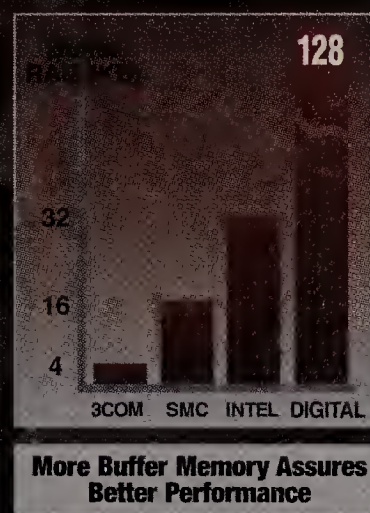
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Circle Reader Service #28

IBM to push DB2 as a platform for data warehousing

BY BARBCOLE

New York

IBM this week is expected to announce a bundle that combines its parallel processing computers with a special version of its DB2 database primed for data warehousing.

The offering, to be rolled out at DB/EXPO '94 here, will consist of DB2 Parallel Edition for AIX running on IBM's PowerParallel SP2 computers and will be designed to handle databases in the several hundred gigabyte range, sources said.

While a traditional database houses ever-changing information updated via transaction processing, a data warehouse contains static information that has been compiled elsewhere. End users then query that information with decision support tools.

Parallel processing, the ability to divide work among multiple processors, is key to reduce response times for the complex queries and high volume of transactions associated with data warehousing.

IBM first previewed a version of DB2 that supports parallel processing in May. Since then, IBM's database rivals have aggressively targeted the growing data warehousing niche (NW, Nov. 28, page 1).

Doing it in parallel	
Database offering	Parallel processing support
IBM DB2 Parallel Edition	Can scale as many as 64 processors; runs on IBM's SP2 parallel processing computers.
Informix On-Line Dynamic Server 7.1	Loads data, builds indexes, and processes queries and sorts across SMP computers.
Oracle Oracle7.1	Loads data and processes queries across SMP computers and a few high-end MPP machines.
Sybase Navigation Server	Designed for high-end databases in the hundreds of gigabytes range; runs on MPP machines with eight to 64 processors.

GRAPHIC BY TERRI MITCHELL

Industry leaders stage unity rally

BY MICHAEL CSENGER AND DAVID ROHDE

New York

As expected, four industry powerhouses last week unveiled what they hope will become the Good Housekeeping Seal of Approval for interoperability standards among computers and telephone equipment.

AT&T, IBM, Apple Computer, Inc. and Siemens Rolm Communications, Inc. introduced Versit, a sort of ad hoc standards approval venture. Versit will adapt specifications in areas relating to computer-telephone integration.

The Versit partners said they would approach other leading companies, but Microsoft Corp. officials immediately denied claims by Versit officials that Microsoft was asked to participate.

"It's difficult to reach agreement in large committees," said Siemens Rolm President Peter Pribilla, describing why current standards bodies were not sufficient to push the work along. "[Versit] is small enough to do it fast but big enough to make it happen."

That remains to be seen, analysts said.

"This is another example of how IBM is finally joining the throng with the right products," said Bobby Cameron, senior analyst at Forrester Research, Inc. in Cambridge, Mass.

The IBM data warehouse is expected to be available by the third quarter of 1995. Pricing was not available.

CA STATUS REPORT

Also at DB/EXPO, Computer Associates International, Inc. plans to announce that it is a few months ahead of its delivery schedule for the next generation of the CA-Ingres database and CA-OpenRoad development tool, according to Alan Paller, CA's director of open systems.

In August, CA said the CA-OpenIngres 1.1 database would be available in second-quarter 1995. This was about six months later than The ASK Group — acquired by CA in April — had previously promised.

"The delivery dates they quoted in August were conservative, so I wouldn't be surprised if they're a bit ahead of schedule," said Kitty Weaver, a CA-Ingres customer and systems administrator at the National Center for Atmospheric Research in Boulder, Colo.

Analysts said it is important that CA get the new release out as soon as possible since some industry watchers are skeptical that CA can maintain the product's technical edge. Almost none of the Ingres development staff made the move from ASK to CA, CA confirmed.

"Oracle and Sybase have publicly announced plans to go after CA-Ingres users. Right now there is still an air of uncertainty surrounding CA-Ingres," said Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass.

IMPROVING INTEROPERABILITY

Sybase, Inc.'s gateway business unit, Micro Decisionware, Inc., will announce middleware that replicates data stored in IBM DB2 databases into Sybase SQL Server System 10. The DB2 Log Transfer Manager for Sybase Replication Server is expected to ship by mid-1995, sources familiar with the announcement said. Pricing was not available.

Meanwhile, Microsoft Corp. and Information Builders, Inc. will announce gateways that link Microsoft's SQL Server to mainframe data sources such as DB2 and MVS mainframes.

The gateways, slated for a mid-1995 rollout, will be based on IBI's Enterprise Data Access/SQL middleware. ■

"Most alliances don't produce a lot of [results for users]," said Bart Stanco, a Gartner Group, Inc. analyst. "Give me one or two that have done something, and I can give you 55 that haven't."

Versit's first standards will be extensions of technologies already favored by the four big guns, a strategy that generated suspicion from nonparticipants.

For example, Versit will adapt specifications based on AT&T's Telephony Services API for LAN servers connected to PBXs, and Apple's Geoport for high-speed interfaces between personal computers and telephones. But Geoport is likely to compete with a desktop interface under development by Intel Corp. and others, and some viewed the announcement as potentially splitting the market into two camps (NW, Nov. 28, page 1).

"The PBX group at AT&T has not had a good relationship with Microsoft and Intel," said Jim Burton, principal with C-T Link, Inc., a Boston consulting firm. But he added, "you don't deal with it by putting up barriers, which is what I see this as."

Versit did draw kudos for its intended support of standards developed by the Infrared Data Association for the wireless connection of PCs and personal digital assistants to telephone devices. In one demo here, the firms displayed an infrared link between an Apple Newton and a Rolm phone in which the Newton was used to instruct the local PBX to forward all calls. ■

LAN-TO-MAINFRAME

Memorex to rev up gateway

BY MICHAEL COONEY

Raleigh, N.C.

Memorex-Telex Corp. will this week announce new features for its LAN-to-mainframe gateway that support high-speed enterprisewide file transfers and LAN backup applications.

The company will roll out two new features for the 9432 Enterprise Gateway — High Speed Data Pipe (HSDP) and Fast File Transfer (FFT) — that will let users on TCP/IP, Novell, Inc.'s NetWare and IBM's Systems Network Architecture-based LANs communicate with the mainframe without requiring VTAM or TCP/IP software on the host.

This announcement is part of an enterprise storage announcement the company will make today, although officials declined to comment further on that part of the announcement.

The 9432 is Memorex's LAN-to-mainframe gateway. It is similar in function to IBM's 3172 Interconnect Controller, but the 9432 is optimized to support NetWare LANs.

"With these new products, we are offering users a faster way to back up existing LAN data, gain access to remote databases and provide improved file transfer capabilities across the enterprise," said Nick Tuttle, director of enterprise network storage

See Memorex, page 71

AT&T unit, First Virtual team on ATM and ISDN

BY JODI COHEN

Dayton, Ohio

AT&T Global Information Solutions (GIS) last week announced an agreement to integrate its ISDN technology with ATM products from First Virtual Corp. to produce tools for videoconferencing and workgroup collaboration over WANs.

First Virtual is the Santa Clara, Calif., start-up founded by Ralph Ungermann, who serves as its chief executive officer. The firm's mission is to provide low-cost Asynchronous Transfer Mode products that can run multimedia applications on the desktop by integrating its own software with ATM hardware, including 25M bit/sec adapters and ATM hubs, from other vendors.

In addition to product development, AT&T GIS — formerly known as NCR Corp. — has agreed to resell First Virtual products. And AT&T Ventures, which is chartered to make venture capital investments for AT&T, has invested \$1.5 million for a 12% stake in First Virtual.

Among the First Virtual products AT&T GIS will resell worldwide is its Multimedia Operating System (MOS). MOS allows users to work with objects and files containing voice, video and data over an ATM network.

First Virtual will also offer its First Virtual Media Adapter, a personal computer-resident adapter that will work with AT&T's H.320 Video Encoder Adapter board. The adapter will also enable First Virtual's MOS to work with AT&T's Vistium Share groupware product in an ATM LAN environment.

The companies will also codevelop a gateway that will connect local, MOS-based ATM workgroups to remote sites via an ISDN link from First Virtual's

ATM workgroup switch. Both Primary Rate Interfaces and Basic Rate Interfaces will be supported, and the gateway will allow customers to share ISDN lines among workgroup users.

The gateway will also be compatible with the H.320 international videoconferencing standard, letting it work with end stations like AT&T's Vistium video-enabled workstation or H.320-compatible videoconferencing systems.

First Virtual is developing a similar ATM-to-ISDN gateway that will work with Teleos Communications, Inc.'s NetworkHub access multiplexers (NW, Oct. 31, page 1).

Product announcements resulting from the AT&T GIS alliance are not expected until the first half of 1995.

According to Tom Nolle, president of CIMI Corp. in Voorhees, N.J., this alliance sets out to bring multimedia applications closer to reality.

"The agreement combines the best local-area multimedia technology, which is 25M bit/sec ATM, with the best wide-area multimedia technology, which is ISDN," he said. "This catapults

First Virtual into industry credibility. Now we need to watch and see if this alliance can deliver something meaningful and useful."

As part of AT&T's stake in First Virtual, Neal Douglas, a general partner with AT&T Ventures, will sit on its board of directors.

"By taking an equity stake in First Virtual instead of just forming a marketing alliance, AT&T is putting a bit of its own credibility on the line," Nolle said. "It won't be as easy for them to waltz away from this if it turns out that nothing happens." ■

What's the deal?

Key components of the AT&T GIS-First Virtual alliance.

ATM and ISDN integration.

AT&T GIS to distribute First Virtual ATM-based products for multimedia nets.

AT&T Ventures invests \$1.5 million for 12% of First Virtual.



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Trio of vendors intro new local network switches

BY JODI COHEN

A host of LAN switch vendors sounded off last week with announcements ranging from ATM strategies to fiber-based Ethernet boxes.

LANNET Data Communications, Ltd.

Switching into gear		
Company	Product	Availability
LANNET-Hynet	Onramp, a stackable Ethernet-to-ATM adapter	3Q 1995
	Pathway, an ATM-to-shared-Ethernet module	3Q 1995
LANNET-Fore	Highway, an ATM-to-switched-Ethernet module	4Q 1995
LANNET	As yet unnamed, multiprotocol edge adapters	1996
Plaintree	WaveSwitch 100FL, a fiber Ethernet switch	1Q 1995
Network Peripherals	EIFO-FL, a switching hub	Now

rolled out its Asynchronous Transfer Mode road map, Plaintree Systems, Inc. announced a fiber Ethernet switch, and Network Peripherals, Inc. will unveil a fiber-based switch.

LANNET's ATM plans revolve around a technology agreement with Fore Systems, Inc. and the purchase of a \$2 million stake in Hynet, Ltd., a Tel Aviv, Israel-based ATM start-up.

LANNET will integrate Fore's ATM technology into its MultiNet line of switching hubs. MultiNet supports multiple types of shared and switched LANs and different types of media from a single chassis. Based on Fore's technology, LANNET will develop an ATM adapter code-named Highway that will allow transmission of switched packets over an ATM backbone (see graphic).

According to Val Sribar, a senior research analyst at META Group, Inc. in Reston, Va., since LANNET has a high-end LAN switching strategy, the obvious

next step was to build a credible ATM plan.

"Working with Fore gives LANNET immediate credibility, and having Hynet as an alternative supplier for other ATM products makes it seem like they are coming up with a comprehensive strategy," he said.

To round out the company's ATM strategy, LANNET also announced it is developing its own modular ATM technology to connect multiple shared and switched LAN protocols within the hub and to provide local-area ATM connectivity for workstations.

RIDING THE WAVE

In other switching news, Waltham, Mass.-based Plaintree Systems last week announced a new 12-port Ethernet switch based on the 10Base-FL standard.

Dubbed WaveSwitch 100FL, the switch has 12 10M bit/sec fiber Ethernet ports and two 100M bit/sec ports that can support any combination of Fiber Distributed Data Interface, 100Base-T, 100VG-AnyLAN or the company's fiber-optic fast Ethernet, WaveBus.

John Virden, vice president of sales and marketing, said WaveSwitch 100FL offers users the distance benefits of fiber.

"Ethernet switching is limiting because you are still stuck to a 10Base-T port, which

means you can only be 100 meters away," Virden said. "Plaintree eliminated that with fiber connections that can be up to 2 km long."

WaveSwitch 100FL provides each desktop or workgroup with a dedicated 10M bit/sec Ethernet and requires no reconfiguration of existing networks.

The 12-port WaveSwitch 100FL costs \$11,995 and will be available in February.

Network Peripherals in Milpitas, Calif., today will unveil a new member of its EIFO family of switching hubs featuring six 10Base-FL fiber-optic Ethernet ports and an expandable 100M bit/sec FDDI net connection.

The six fiber-optic ports of the EIFO-FL connect Ethernet segments or individual workstations, providing a full 10M bit/sec per port. The EIFO-FL also supports an unshielded twisted-pair (UTP) or fiber connection to a 100M bit/sec FDDI net. An integrated four-port FDDI expansion module can be installed to connect local servers to the net.

Pricing for the switching hub starts at \$9,495, and the four-port UTP and fiber FDDI expansion modules are priced at \$2,995 and \$4,495, respectively. All are available now.

©LANNET: (714) 752-6638; Plaintree: (800) 370-2724; Network Peripherals: (800) 674-8855.

Newbridge offers up WAN card for Internet servers

BY MICHAEL CSENGER

Kanata, Ontario

Newbridge Microsystems last week introduced a T-1 access card that makes it simpler and less expensive to connect Sun Microsystems, Inc.'s Netra Internet servers to WANs.

The Sprite T1 card is optimized for Sun's Netra Internet Server, a customized workstation that Sun claims can be

T1 at \$3,500, said Jeff Van Zwoul, product marketing manager at Newbridge.

"The DSU/CSU would cost about \$1,500, then another \$1,000 for the protocol software and \$2,000 for the [High Speed Serial Interface] card that lets you connect the CSU to a workstation," Van Zwoul said.

Bill Price, manager of advanced net systems for Sprint, Ltd., which provides Internet access in Florida, noted another advantage. "It simplifies management and lowers the cost by eliminating separate parts and pieces that someone has to know about."

Sprint sells and leases the Netra server and will offer the Sprite T1 card option. "We've been looking for some-

Dark fiber

Continued from page 1

equipment telephone companies use for their fiber backbones.

But AT&T stands ready to provide equipment such as the Synchronous Optical Network (SONET)-based FT-2000 OC-48 Lightwave System for each terminal location. Although costs vary by as much as 30%, a typical FT-2000 configuration costs about \$200,000, according to John Brannon, a sales manager with AT&T Network Systems' Commercial Private Networks Group in Holmdel, N.J.

And with lesser options — such as AT&T's DDM-2000 SONET multiplexer, which is capable of splitting 84 T-1 channels off an OC-3 ring — the economics become especially compelling, particularly with volume discounts. For example, the city government here obtained three FT-2000s and three DDM-2000s for about \$500,000, according to Victor Brown, director of the city's Institutional Network (I-Net) service.

A single T-3 from NYNEX Corp. typically costs about \$5,000 a month, depending on mileage, Brown said. But with the dark fiber solution, he said, "we could turn up [T-3s] once the infrastructure was in place at no incremental cost."

Other vendors — notably Northern Telecom, Inc., NEC America, Inc. and Fujitsu Network Transmission Systems, Inc. — also make fiber termination equipment. But since their sales are geared toward LECs, they do not offer economical deals for private corporate networks, Brown said.

Some of the regional Bell holding companies and GTE Telephone Operations have started offering hybrid private/public networks under which they purchase SONET or Fiber Distributed Data Interface termination equipment on behalf of customers and build the cost into their tariffs (NW, Oct. 31, page 30; Nov. 21, page 37). But in these cases, the charges are still bandwidth-sensitive and pile up every month (see graphic).

For some dark fiber users, cost is secondary to reliability and redundancy. In the electric utility industry, even the 99.9% uptime of Bell operating companies often is not sufficient, said Dale Castro, senior project engineer for Baltimore Gas & Electric Co.

"We can't tolerate any downtime in our relay circuits," Castro said. "Things blow out and burn down."

Fiber-optic options

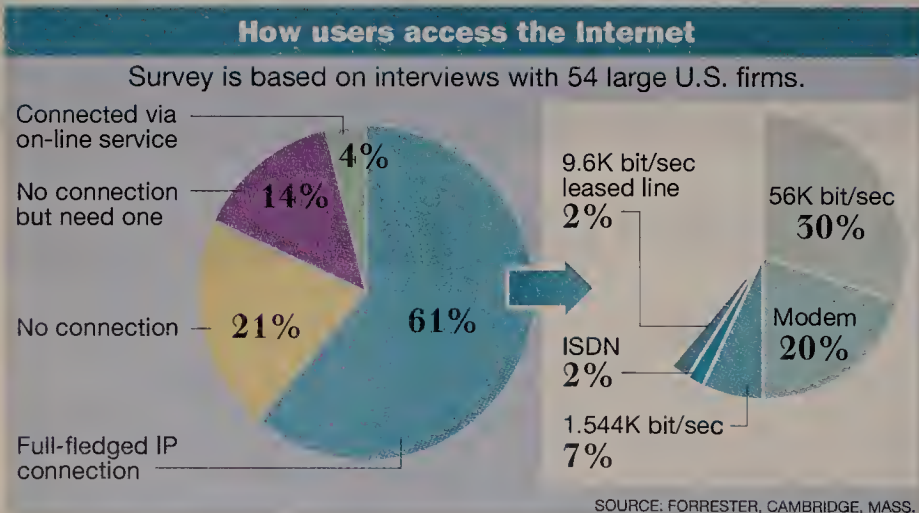
Cost comparison between dark fiber and carrier-provided fiber-based service.

National Fiber Network option

- ◆ \$140 per mile for leased dark fiber
- ◆ \$50,000-\$200,000 per site for termination equipment
- ◆ Virtually unlimited capacity with no monthly fees

Sample GTE MetroLAN three-year contract

- ◆ \$3,000 installation charge for each T-3 or OC-3 circuit
- ◆ Monthly charges per circuit:
 - T-1: \$95
 - 10M bit/sec Ethernet circuit: \$500
 - 16M bit/sec token-ring circuit: \$700
 - T-3: \$1,200
 - 155M bit/sec: \$2,900
- ◆ Additional monthly charge of \$110 per attachment to each Ethernet or token-ring LAN.



installed and on-line to the Internet in half an hour. The card replaces as many as three separate components otherwise required for WAN connectivity at full and fractional T-1 speeds.

About 2 by 3 inches, the Sprite T1 is an evolution of Newbridge's stand-alone data service unit/channel service unit (DSU/CSU) technology squeezed onto a single internal card supporting nonchannelized connections from 56K to 1.544M bit/sec.

Connecting a Netra to WAN services with separate components would cost about \$4,500, compared to the Sprite

body to integrate this DSU/CSU function on a card," Price said. "The DSU/CSU is one cost element of networking that has not come down the way routers have, so this helps."

Newbridge also offers a Sprite T1 card for standard Sun workstations, with a channelized interface and other options that raise its price to \$8,994.

The Sprite T1 for Sun's Netra is sold only through Access Graphics, Inc., Sun's primary Netra reseller.

©Newbridge Microsystems: (613) 592-0714; Access Graphics: (303) 938-9333.

Baltimore Gas & Electric avoids Bell Atlantic Corp. charges with a combination of six FT-2000 OC-48 units from AT&T for its backbone ring and a mixture of various AT&T fiber equipment for other segments, according to Castro. In effect, he said, "we have our own telephone company."

AT&T and NFN hope to accelerate this trend here by making it easy for customers to obtain dark fiber.

Traditionally, users have found this a hurdle because rights-of-way are held by the local telephone companies, which dislike offering dark fiber directly to users because it competes with their leased-line offerings (NW, April 12, 1993, page 29).

But NFN, which is an affiliate of a major construction company here, last December was awarded a special franchise by the city to run fiber through rights-of-way in all five boroughs.

"Unlike the telecommunications carriers, NFN has no existing revenue base that will be threatened by dark fiber installation," said Adam Reeves, an analyst at Dataquest, Inc. in San Jose, Calif.

Users should understand that NFN does not have any obligations to actually provision usable leased circuits over the fiber.

"NFN is not a [competitive access provider]. They're a wholesaler of capacity," said David Goodtree, an analyst with Forrester Research, Inc. in Cambridge, Mass. "What makes them unique is their deal with the city." □

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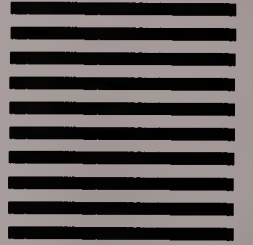


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Downsizing Efforts

Sun unit heats up mgmt. consulting service offerings

By PEGGY WATT

Milpitas, Calif.

Sun Microsystems, Inc. learned from its own experience about some of the hassles of downsizing, managing networks with insufficient tools and coaxing users to new systems.

Now the company is turning those lessons into a new line of network management software packages paired with on-site consulting for companies that need help with downsizing, network needs assessment and technical support for end users. These are the first packages to be offered through the SunService business unit formed by Sun about a year ago, and they will take it beyond offering just custom consulting to Sun hardware users.

"We've developed our own methodologies, processes and tools to run our own shop," said Anthony Medeiros, SunService product-line marketing manager. "The [products are] more than the software. [The tools] come with service."

The Sun Asset Survey Reporting Service takes a census of all hardware and software on heterogeneous networks, providing the basis for a SunService use and needs analysis. The Sun Help Desk System Implementation Service includes several software tools that make

up an integrated help desk service, plus on-site consulting by a SunService representative.

The services are aimed at companies in transition — by growth, a downsizing effort or even a corporate merger that requires combining assets.

SunService is intended to augment existing

skills and equipment. For example, using the Solaris-based tools in the Sun Asset Survey Reporting Service, SunService consultants help network managers take a thorough inventory of TCP/IP networks. They generate a list of equipment by categories such as manufacturer, operating system and version, IP address and (with Sun equipment) model. SunService consultants produce a needs and performance analysis, which might cross-reference the equipment information with other data, such as help desk call trends, and offer suggestions to improve efficiency.

An assessment typically takes three hours and is nonintrusive; SunService's largest analysis to date has been 12,000 systems.

The Sun Help Desk System Implementation Service provides software and an on-site SunService consultant for 15 days. The tool set includes Sun CallTracker, a call logging system; SunSolve, a search and retrieval system that includes an editable database of common technical problems based on Sun's own experience troubleshooting users' problems; and SunCourier, which sends electronic queries to on-site managers or even to vendors.

The Help Desk System tools can work with

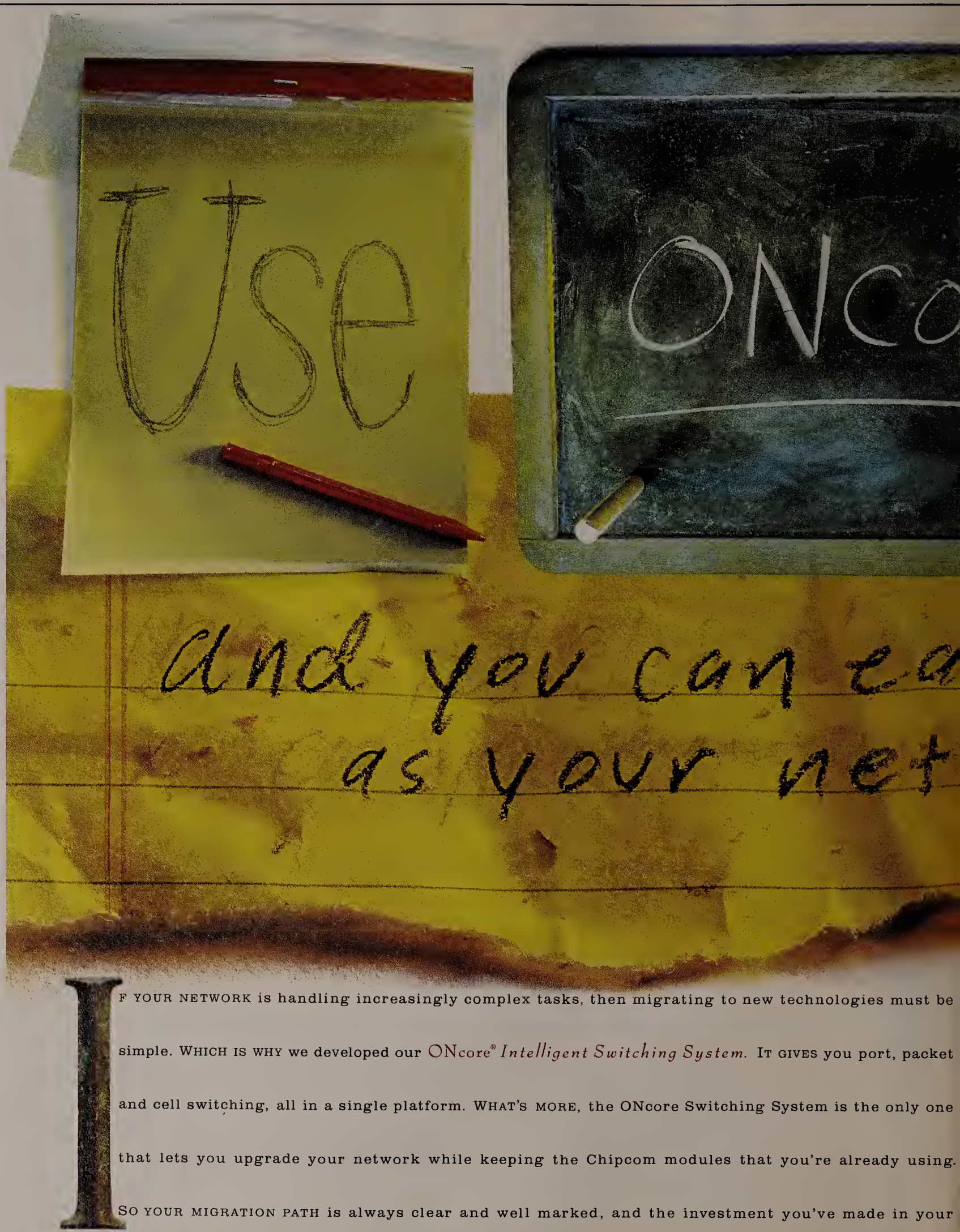
SunNet Manager, the SunSoft network management system, to monitor operations and flag problems. For example, if disk storage reaches a designated threshold of capacity, CallTracker can automatically log the problem and alert a manager.

That feature was used by Bill Alaoglu, who directed information technology for World Cup USA, the international soccer tournament that spanned nine sites. World Cup data — from accident reports to game statistics — was managed on a network of 15 Sun servers and 1,000 Sun workstations across the country. When equipment failed, such as when a truck damaged cable and data lines at Stanford Stadium in Palo Alto, Calif., the Help Desk System tools identified the physical site of the problem immediately and routed details to the help desk.

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Company:	SunService (a division of Sun)	
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IBM makes further cuts in Networking Systems unit

Decides to trim work force by another 300 employees.

BY MICHAEL COONEY

Raleigh, N.C.

A year of turmoil got a bit worse for IBM's Networking Systems division last week as the firm laid off another 300 workers here.

Once one of the more stable and successful

IBM business units, Networking Systems has seen its ranks depleted by 10% this year alone as about 750 people were laid off last spring (NW, May 23, page 9).

An IBM spokesman said the cuts were announced to employees last Wednesday and

are part of the firm's ongoing restructuring.

"This resource action is part of our aggressive cost-reduction efforts as we continue to make IBM more competitive in the future," he said.

When IBM embarked on a corporatewide restructuring effort in July 1993, Big Blue executives said 35,000 employees were expected to leave the firm in the following 12 to 16 months. By the end of 1994, they said IBM would have a work force of about 225,000 people, down from a high of 405,000 in 1985.

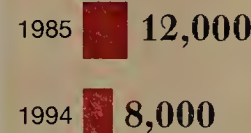
Despite recent third-quarter results, which showed the company's earnings up almost 9%

Unkind cuts

Number of people in IBM total work force



IBM Networking Systems division work force



IBM continues to restructure its work force, with Networking Systems cutting another 300 people last week.

GRAPHIC BY SUSAN J. CHAMPENY

over last year's third quarter, IBM Chairman and Chief Executive Officer Louis Gerstner said the restructuring would proceed as planned.

"We are far from our targeted levels of performance," he said. "We still have a lot of work to do in several areas of our business."

Networking Systems is apparently one of those areas that still needs work, analysts said.

"The questions are, how bloated is Networking Systems and how far can IBM cut before it really starts affecting product development," said Sam Albert, president of the Albert Associates consultancy in Scarsdale, N.Y. "It's not clear

[if] IBM has gone too far, but it is clear it still has lots of corporate streamlining left to do.

"It's also clear that Jerry York [IBM's chief financial officer who makes layoff decisions] makes Scrooge look like a philanthropist," Albert said.

Other sources, however, said this round of layoffs could hurt product development.

After the first round in July, users said many IBM technologists already had their hands full. Now that situation appears exacerbated.

"The questions are, how bloated is Networking Systems and how far can IBM cut before it really starts affecting product development," Albert said.

OUTSOURCING OPTION

The result will be that IBM could outsource some of its development work.

Sources said IBM is looking at network and systems management and TCP/IP product development as two possible areas where IBM might seek outside development help. IBM had no comment on this scenario.

The good news for users is that most haven't seen any support problems related to the layoffs this year.

"We've heard stories that some support problems have cropped up in other companies' dealings with IBM, but we haven't experienced any problems firsthand — our service has been great," said Ron Sanderson, manager of network software and support for Illinois' Bureau of Communications and Computer Sciences/Information Services division. "The line of communication between us and the Networking Systems people is still open."

Comments?

See "How to reach us" on the back page.

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HP to recast OpenMail as a groupware engine

BY ADAM GAFFIN

Boston

Over the next year, Hewlett-Packard Co. will deliver a series of new applications aimed at converting its OpenMail messaging server into an enterprise groupware and workflow engine.

HP plans to deliver everything from calendaring and scheduling modules to full-fledged bulletin boards and workflow applications for its X.400-based OpenMail server software, said Raul Mujica, marketing manager for HP's Enterprise Messaging Operation, at last week's EMail World show.

Interestingly, the plans call for giving OpenMail many of the same capabilities as Lotus Development Corp.'s Notes. HP recently signed a deal with Lotus to better integrate Notes with OpenMail's message transport abilities (NW, Nov. 14, page 3).

THE NOTES LINK

But Mujica said he does not see the new OpenMail products competing directly with Notes because OpenMail is designed more for providing back-end services across an enterprise. Notes is a good application development platform and could serve as a client front end to the new OpenMail services, he said.

Calendaring and workflow-based forms routing are key components of the HP effort, in part because those are features now used

heavily by users of mainframe systems such as IBM's Professional Office System, Mujica said. HP hopes to convince mainframe users that these functions, when coupled with enhanced management abilities and PROFS-to-OpenMail gateways, will provide a smooth transition to client/server.

HP plans to introduce its own server-based store for calendaring information and hopes to work with vendors of group calendaring client software to establish integration agreements. This would let administrators connect calendaring clients to a more powerful client/server architecture and link proprietary calendaring systems across an enterprise, Mujica said. The links between calendaring front ends and back ends would be similar to the links HP has established with E-mail vendors to let their messaging clients work with HP's OpenMail server software.

Mujica added that whatever its design, the new module will support both remote procedure calls for real-time scheduling and store-and-forward messaging for use across a wide area. Products could ship by next September, he said.

New look

OpenMail's messaging capabilities themselves will be upgraded next year, with support for Microsoft's MAPI and the Internet-based MIME and uuencoding for TCP/IP multimedia messages.

Also on tap are enhancements to OpenMail's bulletin-board capabilities, which currently do not include threading — the grouping of messages by topic. HP is talking to Collabra Software, Inc. about possibly integrating its Collabra Share conferencing clients with OpenMail, but Mujica said HP is also looking at boosting its existing bulletin board capabilities.

HP plans to add messaging-based workflow to OpenMail, as well. This may be accomplished through joint development with a workflow software vendor, such as Reach Software Corp.

OpenMail will also gain tighter integration with HP's existing and planned network management and administration tools, Mujica said. This will include integration with HP's Operations Center intelligent-agent management platform in the second or third quarter. Also planned is integration with HP's new Admin-Center software configuration management tool.

By the third quarter, HP hopes to deliver a Windows-based tool that will let designated users do such things as add and delete end users from messaging directories via a graphical interface.

HP is also looking at ways to integrate OpenMail with networked services provided by the Open Software Foundation, Inc.'s Distributed Computing Environment, such as Kerberos-based security, Mujica said.

©HP: (415) 857-1501.

Novell taps into Collabra's group conferencing

BY ADAM GAFFIN

Boston

Novell, Inc. filled a gap in its groupware strategy last week, announcing plans to integrate into future versions of its GroupWise suite Collabra Software, Inc.'s conferencing software.

Novell also clarified the future of its Message Handling Service (MHS) message transport, saying it will continue to support MHS but not add any major enhancements to it. MHS will instead be rolled into the company's overall client/server messaging architecture, now under development.

Novell made the announcements at the EMail World conference here.

Collabra's Collabra Share conferencing technology will be among the technologies supported under that client/server messaging architecture, as well. The architecture will be based on a new message store, MHS and a variety of new components, such as a calendaring module — all accessible to developers via a series of application program interfaces (API).

UP FOR DISCUSSION

Collabra Share offers discussion databases similar to those in Lotus Development Corp. Notes. With the addition of this technology to its messaging product line, Novell can begin shaping an overall groupware platform with similar functionality to Notes.

Initially, Collabra Share for GroupWise will be little different from Collabra's existing clients, using MHS as a message transport.

Over the next year, however, as Novell rolls out a new client/server messaging architecture, Collabra Share for GroupWise will become more tightly integrated with Novell's networking infrastructure, according to Collabra officials. This will include GroupWise and Collabra Share using common folders, message stores and directories, they said.

Eric Hahn, Collabra president and chief executive officer, added that another likely outcome is development of text-search and replication engines common to both Collabra conferences and other GroupWise applications.

It is also likely that Collabra Share, which currently relies on Windows servers, will eventually be available as a NetWare Loadable Module.

Mike Rothman, an analyst with the META Group, Inc. in Reston, Va., said the integration of Collabra Share with GroupWise will help Novell catch up to Lotus in groupware functionality but not surpass it.

Novell will begin shipping Collabra Share for GroupWise in the first quarter of next year. In the second quarter, Novell will begin including a basic version of the software with NetWare at no additional cost.

This version of Collabra Share will include the ability to create and use multiple conferences, but full text searching and the ability to interact with users of other messaging systems will be sold as an option.

Also at the show, Novell said it will continue to support MHS but that all major enhancements to it will come as extensions to Microsoft Corp.'s Messaging Application Programming Interface (MAPI).

Willie Tejada, director of GroupWare marketing at Novell, said this is in large part a recognition of the dominant role MAPI has assumed in the messaging arena. □

Vendors partner on electronic mail connectivity

AT&T GIS-Isocor team; Microsoft pairs off with Worldtalk and Mesa Group.

BY ADAM GAFFIN

Boston

X.400 and Internet connectivity highlighted the large number of vendor announcements at last week's EMail World show here.

AT&T Global Information Solutions (GIS) rolled out a new messaging backbone strategy based on X.400 routing software from Isocor of West Los Angeles. The Isocor Isoplex routers replace existing AT&T GIS routers that used an increasingly antiquated set of X.400 standards.

The new AT&T GIS Enterprise Messaging line features support for 1988 X.400, along with X.435, which links electronic data interchange with electronic mail.

From the start, the software will support DOS, Windows, Macintosh and Motif clients, along with servers running Unix variants from AT&T, The Santa Cruz Operation, Inc. and Hewlett-Packard Co.

An AT&T-developed X.500 directory rounds out the offering with Simple Network Management Protocol support.

General availability is expected in January. Officials said pricing would depend on configuration but that it would be competitive with HP's OpenMail offerings.

Microsoft Corp. announced at the show that it will use technology from Worldtalk Corp. to better link users of Microsoft's

planned Exchange mail clients with the Internet. Worldtalk's Internet Connector, to be built into the Exchange server, will give Exchange users the ability to send and receive both uuencoded and Multi-purpose Internet Mail Extension files. It will also feature integration with Windows NT-based management tools and the ability to limit access from or to specified Internet domains.

Meanwhile, Microsoft said it would begin bundling the Mesa Group, Inc.'s Conference+ conferencing software with Microsoft Mail (NW, Aug. 22, page 1).

Mesa, of Newton, Mass., announced separately the release of software linking its conferences with those of Lotus Development Corp.'s Lotus Notes and the Internet's Usenet newsgroups. Pricing starts at \$1,495

for a 100-user license for Notes and at \$995 for a 100-user license for the Usenet version.

Other announcements included:

■ Integration of Lotus' cc:Mail clients with Digital Equipment Corp.'s MailWorks X.400 message store, transport and directory services. This gives cc:Mail users access to a client/server architecture. Availability is expected in the first quarter.

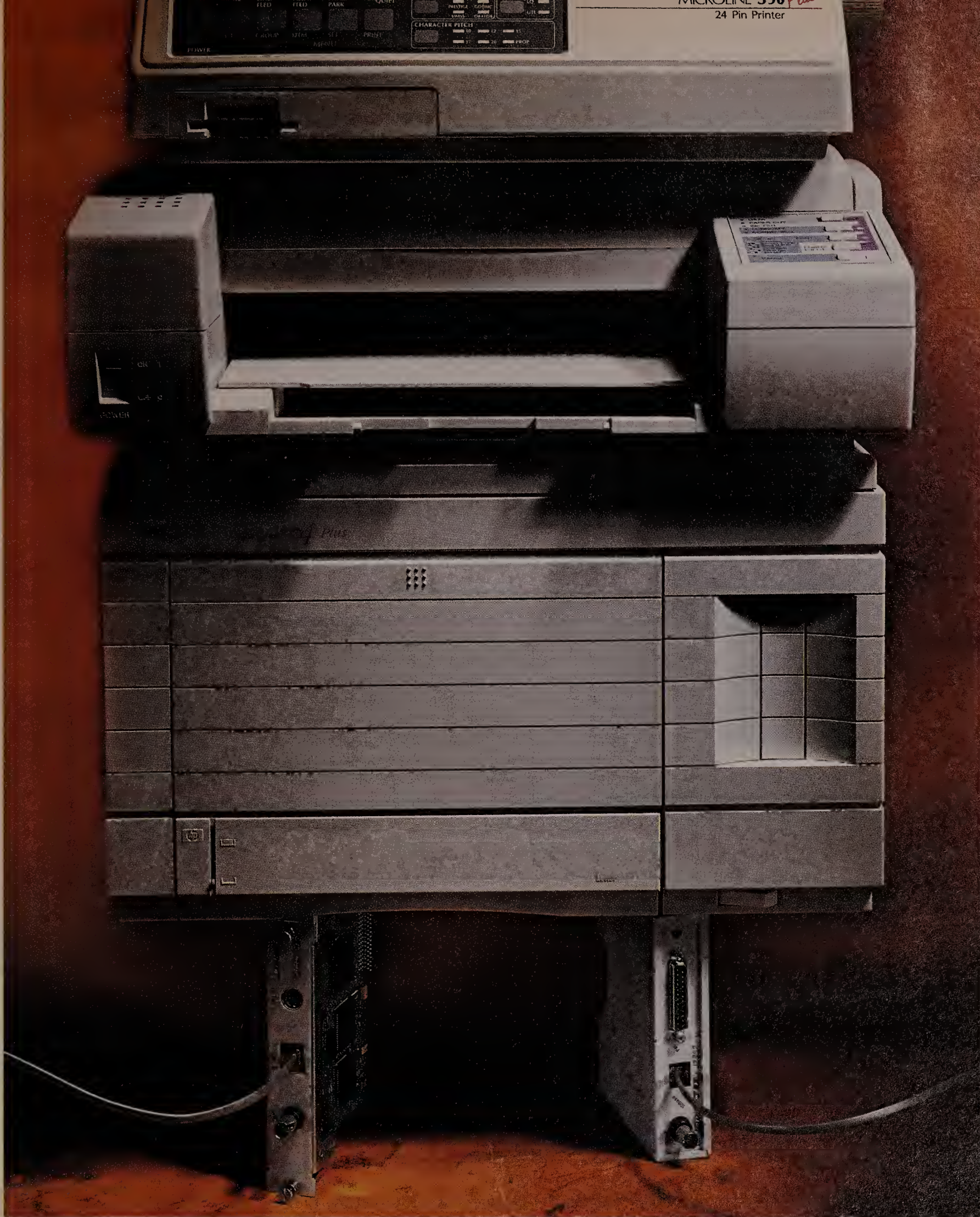
■ New Microsoft Mail software from GE Information Services that will provide a single in-box for E-mail and EDI from a variety of sources. The software will ship in the first quarter of next year.

■ New X.400 gateways offered by Infonet Software Solutions, Inc. for Tandem Computers, Inc. and Sun Microsystems, Inc. messaging systems. The Tandem gateway is available now; the Sun version is due out in the first quarter. Both include technology from Boston Software Works, Inc. Pricing ranges from \$3,000 to \$18,000.

■ Directory synchronization software from LinkAge Software, Inc. that connects HP OpenMail directories with those of IBM host systems.

©AT&T GIS (513) 445-5000; Isocor: (310) 476-2671; LinkAge: (416) 862-7148; Worldtalk: (408) 399-4000.

Worldtalk's Internet Connector will give Exchange users the ability to send and receive uuencoded and MIME files.



JetDirect EX External print servers support any parallel-based printer. JetDirect cards support HP LaserJet, HP DeskJet and HP DesignJet printers with I/O slots

NDS compatibility:
Novell NetWare; IBM LAN Server; Microsoft LAN Manager; Apple EtherTalk; Apple LocalTalk*; Windows NT; Windows for Workgroups; UNIX: HP-UX, SunOS, Solaris, IBM AIX, SCO UNIX, Ipd**

Network compatibility:
Ethernet: 10Base-T, 10Base2; Token Ring (4/16 Mbps); Apple LocalTalk*

Multiple protocols with automatic switching

Software management utilities such as HP JetAdmin and HP JetPrint** for NetWare and UNIX for easy printer installation, remote status and management

Supports SNMP-based network management software

Flash memory for easy upgrades**

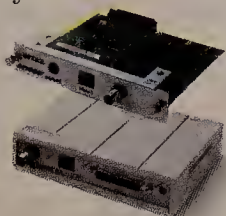


November 22, 1994
HP JetDirect EX

Nothing Supports Your Printers Better Than HP JetDirect Print Servers.

Now you can easily connect and manage the printers in your network environment.

If you've been looking high and low for a way to get all your printers on the network, rest your eyes here for a moment. Because the HP JetDirect family of print servers has a solution that works with the printers in your company. Not to mention virtually any LAN environment.



JetDirect cards connect HP printers with I/O slots

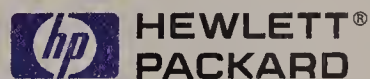
JetDirect EX connects any parallel-based printer

And thanks to the software utilities we've included, installation is quick and management of your printers is easy. Plus, you'll enjoy vastly improved printer performance.

Of course, you'd expect all this from Hewlett-Packard, the leader in network printing. So give us a call at 1-800-533-1333, Ext.

8464.[†] You'll soon discover that when it comes to sharing printers on a network, nothing stacks up to HP JetDirect print servers.

Another smart networking product from HP.



*Not supported by JetDirect EX. **Supported by JetDirect EX, fall of 1994. †In Canada, call 1-800-387-3867, Dept. 8464. ††Supported with Netware only. Microsoft is a U.S. trademark and Windows is a trademark of Microsoft Corporation. UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited. ©1994 Hewlett-Packard Company



Will your network grow into a major raging crabgrass?



Introducing LAN Server 4.0



estic oak,

It all depends on whose software you choose. The new IBM® LAN Server 4.0 will actually make your network a thing of—dare we say it—beauty. So manageable that you'll actually find yourself looking forward to dealing with it.

How have we managed to transform a task that at its best was considered a chore? Well, for a start, we made the new LAN Server 4.0 much easier to install than other network operating systems. And thanks to its powerful new drag-and-drop administration, adding new users is the closest thing to a walk in the park.

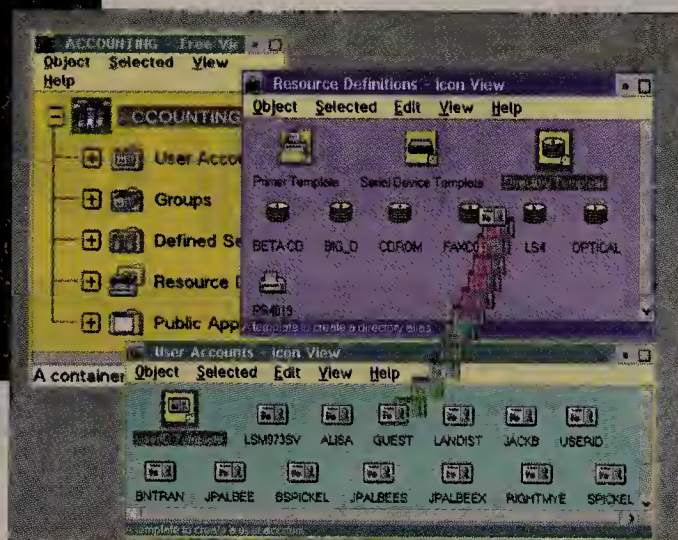
These are just some of the ways LAN Server 4.0 will help your network grow big and strong. For more on how LAN Server 4.0 can beautify your office, call your local reseller or 1 800 IBM-CALL. In Canada, call 1 800 565-SW4U, ext. 298.

"IBM takes an even stronger graphical approach to LAN administration than Windows NT™ Advanced Server."

—InfoWorld

"Early users attested to its speed, robustness and ease of administration."

—Network World



Introducing
LAN Server 4.0

All-new drag-and-drop administration.

Autoconfiguration and software distribution capability.

Over 600 applications already certified, including DOS, Windows,™ OS/2® and Mac® applications.

Seamless NetWare® access for disks and printers.

Integrated TCP/IP

Task Macros

Disk limits

Built-in Peer

Dedicated Server not required

WFW, NT support

"Best of Show"

1994 Network+ Interop, Atlanta.

The LAN Server family of products includes:

- LAN Server for AIX®
- LAN Server for AS/400®
- LAN Server for VM/MVS
- LAN Distance
- LAN Server Ultimedia
- NetView® for OS/2.



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can you improve



**employee
productivity**

when they don't even

show up at the office?

The office is quiet. Desks are clean. You haven't seen an employee for weeks. And business has never been better. There's a perfectly good explanation for all this: RLN™ (Remote LAN Node®). It provides your employees with transparent access to all the resources on your LAN, no matter where they're working. Even on glamorous road trips to places like Secaucus, New Jersey. Once connected, they can access the mainframe, use groupware applications, check E-mail and more, like any local user. And since you won't be keeping your eye on every

employee, every minute, we created superior management and security features. We also teamed up with Citrix® Corporation and their award-winning software to develop our optional Application Server. It can boost remote access performance of LAN-based applications by as much as 300%. So call today about RLN. And start improving the work ethic in your office. And out of it.



FOR MORE INFORMATION ON **RLN** CALL 800.348.3221 X 76R

DCA

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☐ No. Thank You.

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The Newsweekly of Enterprise Network Computing

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If military, please specify branch and base:

If government, please specify division:

1 Industry: (check one only)

- | | |
|--|--|
| 01. <input type="checkbox"/> Manufacturers (other) | 12. <input type="checkbox"/> Government Federal/State/Local |
| 02. <input type="checkbox"/> Finance/Banking | 13. <input type="checkbox"/> Military |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal | 14. <input type="checkbox"/> Aerospace |
| 04. <input type="checkbox"/> Healthcare Services | 15. <input type="checkbox"/> Consultants (Independent) |
| 05. <input type="checkbox"/> Hospitality/Entertainment/ Recreation | 16. <input type="checkbox"/> Carriers/Interconnects |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print | 17. <input type="checkbox"/> Manufacturers (Computer/ Communications) |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services | 18. <input type="checkbox"/> Systems/Network Integrators (VAR/VAD/
VAN/Systems/Software Houses) |
| 08. <input type="checkbox"/> Transportation | 19. <input type="checkbox"/> Distributors Communications/ Computers |
| 09. <input type="checkbox"/> Utilities | 20. <input type="checkbox"/> Other _____ |
| 10. <input type="checkbox"/> Education | |
| 11. <input type="checkbox"/> Process Industries (Mining/Construction/
Petroleum Refining/ Agriculture/Forestry) | |

2 What is your Job Function? (check one only)

NETWORK IS Management:

- | | |
|--|---|
| 1. <input type="checkbox"/> Networking Management | 6. <input type="checkbox"/> Corporate Management (CIO,CEO,PRES,VP,
DIR,MGR,Financial Management) |
| 2. <input type="checkbox"/> LAN Management | 7. <input type="checkbox"/> Consultant (Independent) |
| 3. <input type="checkbox"/> Datacom/Telecom Management | 8. <input type="checkbox"/> Other _____ |
| 4. <input type="checkbox"/> IS,IT,MIS,Systems Management | |
| 5. <input type="checkbox"/> Engineering Management | |

3 What is the total number of sites for which you have purchase influence? (check one only)

- | | | | |
|-------------------------------------|-------------------------------------|-----------------------------------|----------------------------------|
| 1. <input type="checkbox"/> 100+ | 3. <input type="checkbox"/> 20 - 49 | 5. <input type="checkbox"/> 2 - 9 | 7. <input type="checkbox"/> None |
| 2. <input type="checkbox"/> 59 - 99 | 4. <input type="checkbox"/> 10 - 19 | 6. <input type="checkbox"/> 1 | |

4 What is your scope and involvement in purchasing decisions for network products & services for your enterprise?

A. SCOPE (check one only)

1. ☐ Corporatewide
2. ☐ Multienterprise
3. ☐ Departmental
4. ☐ None

B. INVOLVEMENT (check all that apply)

1. ☐ Recommend/Specify
2. ☐ Approve
3. ☐ Evaluate
4. ☐ Determine the need
5. ☐ None

5 Check ALL that apply in columns A and B:

A: I am involved in the purchase of the following products/services.

B: I plan to purchase the following products/services.

- | | | |
|------------------------------|--------------------------|--|
| A | B | LOCAL AREA NETWORKS |
| <input type="checkbox"/> 100 | <input type="checkbox"/> | |
| <input type="checkbox"/> 01. | <input type="checkbox"/> | Local Area Networks |
| <input type="checkbox"/> 02. | <input type="checkbox"/> | Network Operating Systems Software (NOS) |
| <input type="checkbox"/> 03. | <input type="checkbox"/> | LAN Storage Devices (optical, tape, disk, etc.) |
| <input type="checkbox"/> 04. | <input type="checkbox"/> | LAN Backup Systems (optical, tape, disk, etc.) |
| <input type="checkbox"/> 05. | <input type="checkbox"/> | Network Test Equipment/Diagnostic/ Management Software |
| <input type="checkbox"/> 06. | <input type="checkbox"/> | Hubs/Intelligent Hubs |
| <input type="checkbox"/> 07. | <input type="checkbox"/> | Cables, Connectors, Baluns |
| <input type="checkbox"/> 08. | <input type="checkbox"/> | UPS |
| <input type="checkbox"/> 09. | <input type="checkbox"/> | Network Adapter Boards/Network Interface Cards |
| <input type="checkbox"/> 10. | <input type="checkbox"/> | Peer-to-Peer LANs |
| <input type="checkbox"/> 11. | <input type="checkbox"/> | Wireless Networks |
| <input type="checkbox"/> 12. | <input type="checkbox"/> | SNMP Network Management |
| <input type="checkbox"/> 13. | <input type="checkbox"/> | ATM Switches |
| <input type="checkbox"/> 14. | <input type="checkbox"/> | Remote LAN Access |
| <input type="checkbox"/> 15. | <input type="checkbox"/> | Ethernet Switches |
| <input type="checkbox"/> 16. | <input type="checkbox"/> | LAN Servers |
| <input type="checkbox"/> 17. | <input type="checkbox"/> | Superservers |
| <input type="checkbox"/> 18. | <input type="checkbox"/> | Remote Access/Communications Servers |

- | | | |
|------------------------------|--------------------------|----------------------------------|
| A | B | REMOTE/WIRELESS COMPUTING |
| <input type="checkbox"/> 101 | <input type="checkbox"/> | |
| <input type="checkbox"/> 19. | <input type="checkbox"/> | Laptops |
| <input type="checkbox"/> 20. | <input type="checkbox"/> | Notebooks |
| <input type="checkbox"/> 21. | <input type="checkbox"/> | PDAs |
| <input type="checkbox"/> 22. | <input type="checkbox"/> | PCMCIA |
| <input type="checkbox"/> 23. | <input type="checkbox"/> | Mobile Data Services |
| <input type="checkbox"/> 24. | <input type="checkbox"/> | Wireless Data Services |
| <input type="checkbox"/> 25. | <input type="checkbox"/> | Wireless Data Equipment |

- | | | |
|------------------------------|--------------------------|------------------------|
| A | B | INTERNETWORKING |
| <input type="checkbox"/> 102 | <input type="checkbox"/> | |
| <input type="checkbox"/> 26. | <input type="checkbox"/> | Bridges |
| <input type="checkbox"/> 27. | <input type="checkbox"/> | Routers |
| <input type="checkbox"/> 28. | <input type="checkbox"/> | Gateways |
| <input type="checkbox"/> 29. | <input type="checkbox"/> | Bridge/Routers |

- | | | |
|------------------------------|--------------------------|------------------------------|
| A | B | COMPUTERS/PERIPHERALS |
| <input type="checkbox"/> 103 | <input type="checkbox"/> | |
| <input type="checkbox"/> 30. | <input type="checkbox"/> | Micros/PCs |
| <input type="checkbox"/> 31. | <input type="checkbox"/> | Minis |
| <input type="checkbox"/> 32. | <input type="checkbox"/> | Mainframes |
| <input type="checkbox"/> 33. | <input type="checkbox"/> | Workstations |
| <input type="checkbox"/> 34. | <input type="checkbox"/> | Front-End Processors |
| <input type="checkbox"/> 35. | <input type="checkbox"/> | Terminals |
| <input type="checkbox"/> 36. | <input type="checkbox"/> | Printers |
| <input type="checkbox"/> 37. | <input type="checkbox"/> | Cluster Controllers |
| <input type="checkbox"/> 38. | <input type="checkbox"/> | Fax Machines |
| <input type="checkbox"/> 39. | <input type="checkbox"/> | Monitors |

- | | | |
|------------------------------|--------------------------|--|
| A | B | SOFTWARE/APPLICATIONS |
| <input type="checkbox"/> 104 | <input type="checkbox"/> | |
| <input type="checkbox"/> 40. | <input type="checkbox"/> | Network Management |
| <input type="checkbox"/> 41. | <input type="checkbox"/> | Systems Management |
| <input type="checkbox"/> 42. | <input type="checkbox"/> | Micro to Mainframe |
| <input type="checkbox"/> 43. | <input type="checkbox"/> | Security |
| <input type="checkbox"/> 44. | <input type="checkbox"/> | Communication/Terminal Emulation |
| <input type="checkbox"/> 45. | <input type="checkbox"/> | Word Processing |
| <input type="checkbox"/> 46. | <input type="checkbox"/> | Operating Systems |
| <input type="checkbox"/> 47. | <input type="checkbox"/> | Client Server Applications Development |

- | | | |
|------------------------------|--------------------------|---------------------------------------|
| A | B | SOFTWARE/APPLICATIONS (cont'd) |
| <input type="checkbox"/> 48. | <input type="checkbox"/> | Applications Development |
| <input type="checkbox"/> 49. | <input type="checkbox"/> | Data Base Management/RDBMS |
| <input type="checkbox"/> 50. | <input type="checkbox"/> | Spreadsheet |
| <input type="checkbox"/> 51. | <input type="checkbox"/> | Groupware |
| <input type="checkbox"/> 52. | <input type="checkbox"/> | EDI |
| <input type="checkbox"/> 53. | <input type="checkbox"/> | E-Mail |
| <input type="checkbox"/> 54. | <input type="checkbox"/> | Windows/Graphical User Interface |
| <input type="checkbox"/> 55. | <input type="checkbox"/> | 4GL Development/Case |
| <input type="checkbox"/> 56. | <input type="checkbox"/> | Multimedia |
| <input type="checkbox"/> 57. | <input type="checkbox"/> | Graphics/DTP |
| <input type="checkbox"/> 58. | <input type="checkbox"/> | Remote Access |
| <input type="checkbox"/> 59. | <input type="checkbox"/> | Imaging |
| <input type="checkbox"/> 60. | <input type="checkbox"/> | Suites |
| <input type="checkbox"/> 61. | <input type="checkbox"/> | Middleware |
| <input type="checkbox"/> 62. | <input type="checkbox"/> | Document Management |

- | | | |
|------------------------------|--------------------------|--|
| A | B | WIDE AREA NETWORKS EQUIPMENT & SERVICES |
| <input type="checkbox"/> 105 | <input type="checkbox"/> | |
| <input type="checkbox"/> 63. | <input type="checkbox"/> | Modems (9.6K bps and over) |
| <input type="checkbox"/> 64. | <input type="checkbox"/> | Modems (under 9.6K bps) |
| <input type="checkbox"/> 65. | <input type="checkbox"/> | T-1/T-3 Multiplexers |
| <input type="checkbox"/> 66. | <input type="checkbox"/> | T-1/T-3 Services |
| <input type="checkbox"/> 67. | <input type="checkbox"/> | Inverse Multiplexers |
| <input type="checkbox"/> 68. | <input type="checkbox"/> | Fractional T-1 |
| <input type="checkbox"/> 69. | <input type="checkbox"/> | SMDS |
| <input type="checkbox"/> 70. | <input type="checkbox"/> | ATM (Asynchronous Transfer Mode) |
| <input type="checkbox"/> 71. | <input type="checkbox"/> | Matrix Switches |
| <input type="checkbox"/> 72. | <input type="checkbox"/> | Packet Switches |
| <input type="checkbox"/> 73. | <input type="checkbox"/> | Protocol Converters |
| <input type="checkbox"/> 74. | <input type="checkbox"/> | Diagnostic/Test Equipment |
| <input type="checkbox"/> 75. | <input type="checkbox"/> | DSU/CSU |
| <input type="checkbox"/> 76. | <input type="checkbox"/> | Microwave |
| <input type="checkbox"/> 77. | <input type="checkbox"/> | Fax Boards/Modems |
| <input type="checkbox"/> 78. | <input type="checkbox"/> | VSAT |
| <input type="checkbox"/> 79. | <input type="checkbox"/> | Fiber Optic |
| <input type="checkbox"/> 80. | <input type="checkbox"/> | Satellite |
| <input type="checkbox"/> 81. | <input type="checkbox"/> | ISDN |
| <input type="checkbox"/> 82. | <input type="checkbox"/> | PBXs (over 1000 lines) |
| <input type="checkbox"/> 83. | <input type="checkbox"/> | PBXs (under 1000 lines) |
| <input type="checkbox"/> 84. | <input type="checkbox"/> | Automatic Call Distributors |
| <input type="checkbox"/> 85. | <input type="checkbox"/> | Voice Messaging Systems |
| <input type="checkbox"/> 86. | <input type="checkbox"/> | Videoconferencing/Teleconferencing |
| <input type="checkbox"/> 87. | <input type="checkbox"/> | Voice Response/Processing |
| <input type="checkbox"/> 88. | <input type="checkbox"/> | Dedicated Leased Line |
| <input type="checkbox"/> 89. | <input type="checkbox"/> | Switched Data |
| <input type="checkbox"/> 90. | <input type="checkbox"/> | E-Mail/Online Services |
| <input type="checkbox"/> 91. | <input type="checkbox"/> | Image Processing |
| <input type="checkbox"/> 92. | <input type="checkbox"/> | 800/900 Services |
| <input type="checkbox"/> 93. | <input type="checkbox"/> | WATS/MTS |
| <input type="checkbox"/> 94. | <input type="checkbox"/> | International |
| <input type="checkbox"/> 95. | <input type="checkbox"/> | Virtual Networks |
| <input type="checkbox"/> 96. | <input type="checkbox"/> | Frame Relay |
| <input type="checkbox"/> 97. | <input type="checkbox"/> | Value Added Services |
| <input type="checkbox"/> 98. | <input type="checkbox"/> | CIT (Computer-Integrated Telephony) |
| <input type="checkbox"/> 99. | <input type="checkbox"/> | None of the above (1-98) |

6 What is the total number of LANS, Workstations/Nodes: At this Location/ In your Organization?

At This Location:		Entire Organization:	
LANs	Workstations/Nodes	LANs	Workstations/Nodes
1. <input type="checkbox"/> 5000+	<input type="checkbox"/>	1. <input type="checkbox"/> 5000+	<input type="checkbox"/>
2. <input type="checkbox"/> 1,000 - 4,999	<input type="checkbox"/>	2. <input type="checkbox"/> 1,000 - 4,999	<input type="checkbox"/>
3. <input type="checkbox"/> 100 - 999	<input type="checkbox"/>	3. <input type="checkbox"/> 100 - 999	<input type="checkbox"/>
4. <input type="checkbox"/> 50 - 99	<input type="checkbox"/>	4. <input type="checkbox"/> 50 - 99	<input type="checkbox"/>
5. <input type="checkbox"/> 10 - 49	<input type="checkbox"/>	5. <input type="checkbox"/> 10 - 49	<input type="checkbox"/>
6. <input type="checkbox"/> 9 or less	<input type="checkbox"/>	6. <input type="checkbox"/> 9 or less	<input type="checkbox"/>
7. <input type="checkbox"/> None of the above	<input type="checkbox"/>	7. <input type="checkbox"/> None of the above	<input type="checkbox"/>

7 Check ALL that apply in columns A and B:

A: The following network platforms are currently installed.

B: The following network platforms are currently planned.

A	B	NETWORK ARCHITECTURES	A	B	LAN ENVIRONMENT
<input type="checkbox"/> 55	<input type="checkbox"/>		<input type="checkbox"/> 57	<input type="checkbox"/>	
<input type="checkbox"/> 01.	<input type="checkbox"/>	SNA	<input type="checkbox"/> 30.	<input type="checkbox"/>	4M TOKEN RING
<input type="checkbox"/> 02.	<input type="checkbox"/>	DECNET	<input type="checkbox"/> 31.	<input type="checkbox"/>	16M TOKEN RING
<input type="checkbox"/> 03.	<input type="checkbox"/>	MAP/TOP	<input type="checkbox"/> 32.	<input type="checkbox"/>	ARCNET
<input type="checkbox"/> 04.	<input type="checkbox"/>	TCP/IP	<input type="checkbox"/> 33.	<input type="checkbox"/>	ETHERNET
<input type="checkbox"/> 05.	<input type="checkbox"/>	DCA (Unisys)	<input type="checkbox"/> 34.	<input type="checkbox"/>	100 M ETHERNET
<input type="checkbox"/> 06.	<input type="checkbox"/>	X.25	<input type="checkbox"/> 35.	<input type="checkbox"/>	STARLAN
<input type="checkbox"/> 07.	<input type="checkbox"/>	Novell IPX/SPX	<input type="checkbox"/> 36.	<input type="checkbox"/>	FDDI
<input type="checkbox"/> 08.	<input type="checkbox"/>	APPC/APPN/LU6.2	<input type="checkbox"/> 37.	<input type="checkbox"/>	LOCAL TALK
<input type="checkbox"/> 09.	<input type="checkbox"/>	NETBIOS	<input type="checkbox"/> 38.	<input type="checkbox"/>	10BASE-T
<input type="checkbox"/> 10.	<input type="checkbox"/>	OSI	<input type="checkbox"/> 39.	<input type="checkbox"/>	ATM
<input type="checkbox"/> 11.	<input type="checkbox"/>	APPLETALK	<input type="checkbox"/> 40.	<input type="checkbox"/>	OTHER _____
<input type="checkbox"/> 12.	<input type="checkbox"/>	NSF	A	B	COMPUTER OPERATING SYSTEM
<input type="checkbox"/> 13.	<input type="checkbox"/>	XNS	<input type="checkbox"/> 58	<input type="checkbox"/>	
<input type="checkbox"/> 14.	<input type="checkbox"/>	OTHER _____	<input type="checkbox"/> 41.	<input type="checkbox"/>	DOS
A	B	NETWORK OPERATING SYSTEM	<input type="checkbox"/> 42.	<input type="checkbox"/>	UNIX/XENIX/AIX
<input type="checkbox"/> 56	<input type="checkbox"/>		<input type="checkbox"/> 43.	<input type="checkbox"/>	OS/2
<input type="checkbox"/> 15.	<input type="checkbox"/>	LOCALTALK (APPLETALK)	<input type="checkbox"/> 44.	<input type="checkbox"/>	OS/2 X
<input type="checkbox"/> 16.	<input type="checkbox"/>	BANYAN (VINES)	<input type="checkbox"/> 45.	<input type="checkbox"/>	IBM MVS
<input type="checkbox"/> 17.	<input type="checkbox"/>	DCA (IRMLAN)	<input type="checkbox"/> 46.	<input type="checkbox"/>	IBM VM
<input type="checkbox"/> 18.	<input type="checkbox"/>	DCA (10-NET)	<input type="checkbox"/> 47.	<input type="checkbox"/>	DIGITAL VMS
<input type="checkbox"/> 19.	<input type="checkbox"/>	IBM (LAN SERVER)	<input type="checkbox"/> 48.	<input type="checkbox"/>	MACINTOSH
<input type="checkbox"/> 20.	<input type="checkbox"/>	IBM (PC LAN PROGRAM)	<input type="checkbox"/> 49.	<input type="checkbox"/>	WINDOWS
<input type="checkbox"/> 21.	<input type="checkbox"/>	MICROSOFT (LAN MANAGER)	<input type="checkbox"/> 50.	<input type="checkbox"/>	WINDOWS NT
<input type="checkbox"/> 22.	<input type="checkbox"/>	NOVELL (NETWARE, 2X, 3X, 4X)	<input type="checkbox"/> 51.	<input type="checkbox"/>	X WINDOWS
<input type="checkbox"/> 23.	<input type="checkbox"/>	PROTEON (PRONET)	<input type="checkbox"/> 52.	<input type="checkbox"/>	SOLARIS
<input type="checkbox"/> 24.	<input type="checkbox"/>	3COM (3+, 3+OPEN)	<input type="checkbox"/> 53.	<input type="checkbox"/>	OTHER _____
<input type="checkbox"/> 25.	<input type="checkbox"/>	ARTISOFT (LANTASTIC)			
<input type="checkbox"/> 26.	<input type="checkbox"/>	HAYES (LANSTEP)	<input type="checkbox"/> 54.	<input type="checkbox"/>	None of the above (1-53)
<input type="checkbox"/> 27.	<input type="checkbox"/>	DEC (PATHWORKS)			
<input type="checkbox"/> 28.	<input type="checkbox"/>	WINDOWS NT/ADVANCED SERVER			
<input type="checkbox"/> 29.	<input type="checkbox"/>	OTHER _____			

8 For which areas outside of the U.S. do you have purchase influence? (check all that apply)

- | | | |
|------------------------------------|---|---|
| 1. <input type="checkbox"/> Europe | 3. <input type="checkbox"/> South America | 5. <input type="checkbox"/> Middle East |
| 2. <input type="checkbox"/> Asia | 4. <input type="checkbox"/> Australia | 6. <input type="checkbox"/> None |

9 Which of the following hardware platforms are installed/planned in your company? (check all that apply)

	Mainframes		Minis			Mainframes		Minis	
	Installed	Planned	Installed	Planned		Installed	Planned	Installed	Planned
01. IBM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	06. DATA GENERAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02. DIGITAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	07. HP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03. AMDAHL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	08. TANDEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. AT&T	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	09. UNISYS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05. BULL HNIS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. OTHER _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which of the following do you have installed/planned: (USE NUMBERS ONLY)

	At This Location		Entire Organization	
	Servers	Clients/Nodes	Servers	Clients/Nodes
11. POWER MACINTOSH				
12. MACINTOSH OTHER				
13. POWER PC BASED				
14. PENTIUM BASED				
15. 80486 BASED				
16. 80386 BASED				
17. 80286 BASED				
18. 80806/80808 BASED				
19. ALPHA BASED				
20. RISC/UNIX BASED WORKSTATIONS				
21. OTHER				

10 What is the estimated value of networking equipment and services that you help specify, recommend or approve annually? (check one only)

- | | | |
|---|--|--|
| 01. <input type="checkbox"/> \$100 million and over | 05. <input type="checkbox"/> \$10 - \$19.9 million | 09. <input type="checkbox"/> \$499,999 or less |
| 02. <input type="checkbox"/> \$50 - \$99.9 million | 06. <input type="checkbox"/> \$5 - \$9.9 million | 10. <input type="checkbox"/> None of the above |
| 03. <input type="checkbox"/> \$25 - \$49.9 million | 07. <input type="checkbox"/> \$1 - \$4.9 million | |
| 04. <input type="checkbox"/> \$20 - \$24.9 million | 08. <input type="checkbox"/> \$500,000 - \$999,999 | |

11 Estimated gross annual revenues of your entire company/institution: (check one only)

- | | | |
|---|--|---|
| 1. <input type="checkbox"/> Over \$10 billion | 4. <input type="checkbox"/> \$100 to \$499.9 million | 7. <input type="checkbox"/> \$5 to \$9.9 million |
| 2. <input type="checkbox"/> \$1 to \$9.9 billion | 5. <input type="checkbox"/> \$50 to \$99.9 million | 8. <input type="checkbox"/> \$4.9 million or less |
| 3. <input type="checkbox"/> \$500 to \$99.9 million | 6. <input type="checkbox"/> \$10 to \$49.9 million | 9. <input type="checkbox"/> None of the above |

12 Estimated number of employees: At This Location/In Entire Organization.

At This Location:		Entire Organization:	
1.	4.	1.	4.
<input type="checkbox"/> Over 10,000	<input type="checkbox"/> 1,000 - 2,499	<input type="checkbox"/> Over 10,000	<input type="checkbox"/> 1,000 - 2,499
<input type="checkbox"/> 5,000 - 9,999	<input type="checkbox"/> 500 - 999	<input type="checkbox"/> 5,000 - 9,999	<input type="checkbox"/> 500 - 999
<input type="checkbox"/> 2,500 - 4,999	<input type="checkbox"/> 499 or less	<input type="checkbox"/> 2,500 - 4,999	<input type="checkbox"/> 499 or less

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Avistar intros UTP-based desktop video and data-sharing software

BY ELLEN MESSMER

Palo Alto, Calif.

Start-up Avistar Systems this week will unveil desktop videoconferencing equipment and data-sharing software that works over Ethernet or token-ring LANs, as well as wide-area ISDN and private networks.

The Avistar software/hardware package will outfit any IBM personal computer, Apple Computer, Inc. System 7 Macintosh or Sun Microsystems, Inc. Unix workstation for high-quality, 30 frame/sec data and videoconferencing.

The product's design differs from that of most desktop conferencing systems in that it avoids disruptions the video can cause on a LAN by running the video signals in parallel with data on a LAN over separate unshielded twisted pair (UTP).

"There are four unshielded pairs in 10Base-T wiring, but most LAN data networks only use two of them," said Bruce Mitchell, president of Avistar. "We use the extra UTP wiring, which most customers have available in the wall anyway."

Avistar also uses a special rack-mounted switch connected to a Sun Solaris server for switching video calls between two Avistar desktop clients. It also can act as a multipoint bridge for as many as four simultaneous calls.

Each switch, which can support 44 simultaneous users, costs \$14,995.

The Avistar desktop package, which costs about \$1,600, comes with a video camera, speakers, a video overlay board, Windows-based ShareBoard data-sharing and Directory software, as well as a VideoLAN interface board. The VideoLAN board plugs into the LAN for transmission of uncompressed broadcast-quality video signals on a switched basis over UTP.

Avistar's data-sharing software, which allows two users to collaborate on editing when used with any Windows-based application, works over any TCP/IP or IPX LAN.

Users can set up a conference call through the Directory, which sends a message to the Avistar server to locate the remote user's client workstation based on their logon. The server then instructs the Avistar switch to make the

video connection between the two workstations.

The Avistar desktop system not only supports interactive videoconferencing, but also can accept one-way uncompressed video feeds from television, camcorders or lobby security cameras.

Unlike most desktop video systems, the Avistar unit does not rely on a coder/decoder for compressing video images before transmission. "When you compress video, you lose a lot in quality," Mitchell said.

See Avistar, page 19



In addition to videoconferencing, Avistar supports a data-sharing application and a desktop directory that helps in establishing conferencing sessions.

IBM offers up new connectivity option

Adapters let users tie LANs directly to host.

BY MICHAEL COONEY

New York

IBM last week announced a new LAN adapter that will let users link Token-Ring, Ethernet and FDDI LANs to IBM Enterprise System/9000 mainframes without additional controller or router devices.

The new Open Systems Adapter (OSA), which was expected, will allow users to connect as many as 80 Token-Ring or Ethernet LANs and as many as 32 Fiber Distributed Data Interface LANs directly to IBM Systems/390 class machines (NW, Oct. 24, page 1).

"The OSA product backs up the idea that the mainframe can be a server of servers or a server of clients," said Nicholas Donofrio, senior vice president and general manager of IBM's Large Scale Computing Division.

"The key is to reduce the cost and complexity of bringing LANs to the mainframe, and we think OSA helps on both accounts," Donofrio said.

Each OSA adapter costs about \$33,500 and supports five ports. Token-Ring and Ethernet LANs require two ports each, while FDDI attachments take up an entire OSA.

The adapters attach to the mainframe chassis via a "cage," and each cage supports eight OSA boards. The ES/9000 Model-711 can support four cages, and the Model-511 supports two. IBM's newest mainframes — the 9672 Parallel Transaction Server and the 9672 Parallel Enterprise Server — can support two cages and one cage, respectively (see graphic).

Ultimately, OSA will ship integrated with new mainframes and eliminate the need for external cages, IBM executives said.

Analysts agreed that OSA helps to reduce complexity because it eliminates the need for a LAN-to-mainframe gateway, controller or channel-attached router.

But price was another matter.

"The OSA is priced way too high for what IBM is trying to do, which is more cheaply bring LANs to the mainframe," said Anura Guruge, an independent analyst based in New Ipswich, N.H.

He noted that a fully configured IBM 3172 Interconnect Controller with a channel interface and support for two Token-Ring adapters sells for about \$18,000.

Others noted that IBM has priced the OSA competitively with Cisco Systems, Inc.'s new Channel Interface Processor (CIP), which connects Cisco 7000 series routers to the mainframe. Prices for the CIP range from \$28,000 to \$49,000.

IBM OSA adapter brings LANs to mainframe

Mainframe model	Max. OSA cages	Max. slots per cage	Max. attached FDDI/Ethernet and Token-Ring LANs
ES/9000 9021	4	8	32/80
ES/9000 9121	2	8	16/40
9672 Parallel Transaction Server	2	9	18/40
9672 Parallel Enterprise Server	1	9	9/20

Note: Adapter for all models costs \$33,500 and will be available 2Q 1995.

SOURCE: IBM, WHITE PLAINS, N.Y.

OSA will support Systems Network Architecture/LAN traffic as well as TCP/IP and Novell, Inc.'s IPX. It will also work with IBM's TCP/IP for MVS package and will off-load TCP/IP processing from the mainframe, saving more than 30% of the mainframe cycles that are normally required to process TCP/IP.

The adapter is also expected to support an Asynchronous Transfer Mode interface in a future release.

In addition, OSA supports IBM's LAN Resource Extension application, which lets the mainframe act as a big server to Novell NetWare servers. It also off-loads IPX processing from the central CPU.



DONOFRIO

The adapter supports a new MVS-based application called OSA Support Facility, which serves as a configuration and control tool for the OSA board.

For example, the facility lets users download software updates or patches to the adapter.

The adapter can be managed and controlled via IBM's host-based NetView or industry-standard Simple Network Management Protocol platforms such as IBM's NetView for AIX, previously known as NetView/6000.

©IBM: (800) 426-2255.

BRIEFS

T3plus Networking, Inc. last week introduced a low-cost management system for its broadband multiplexers used in basic point-to-point configurations. The DOS-based **Command Management System Software** has a command-line interface that lets users configure and monitor all network nodes simultaneously, rather than individually.

Available now for \$4,000, it is a low-cost alternative to T3plus' BMXview management system, which supports fully meshed topologies.

T3plus: (408) 727-4545.

Verilink Corp. today will announce the first in a new family of access products. The **Access System 100 (AS100)** is a data service unit/channel service unit with a single-user port and one network interface to T-1 or fractional T-1 services.

Available now, the AS100 costs \$1,495, plus \$500 for a Simple Network Management Protocol option. The company did not detail its future Access System product plans.

Verilink: (408) 945-1199.

As high-speed V.34 modems enter the market,

Lava Computer Manufacturing, Inc. last week introduced a serial board that solves the throughput bottleneck that limits many computers to 56K bit/sec or less. The **Lava Link-650** can support up to **230K bit/sec of throughput**, which some modems can achieve using data compression.

The Lava Link-650 is based on a 16550 UART with two 32-byte buffers and a DOS/Windows driver to access them.

Available now, the serial board is priced at \$59.95.

Lava: (416) 674-5942.

Nupon Computing Corp. last week announced a PC-based **dial-up router** and **remote access server** for branch offices running TCP/IP, IPX and Digital Equipment Corp. Local Area Transport protocols. The LTS-HTI server supports wide-area switched 56K bit/sec services and ISDN Basic Rate Interface connections, as well as modem-based asynchronous dial-up lines. Remote access sessions are supported using Point-to-Point Protocol or Serial Line Internet Protocol.

Starting at \$1,995 for four serial ports and one parallel port, the LTS-HTI can scale as many as 16 serial ports for \$3,195. It is available now.

Nupon: (714) 258-8622.

3Com's HPSN strategy targets building and campus networks

BY JIM DUFFY

Santa Clara, Calif.

Users looking to gradually migrate from existing LAN internets to switched infrastructures while maintaining their investments in existing equipment might want to review 3Com Corp.'s High-Performance Scalable Networking (HPSN) strategy.

HPSN defines three stages for evolving building and campuswide collapsed backbone networks into high-speed, high-capacity switched information conduits that use a mix of technologies, including fast Ethernet, Fiber Distributed Data Interface and Asynchronous Transfer Mode.

HPSN is competing with Cisco Systems, Inc.'s CiscoFusion and Bay Networks, Inc.'s BaySIS initiatives for user mind-share. Analysts say HPSN is a little more bullish on ATM switching than the other two, which are trying to tap their installed router bases for as long as possible.

"3Com sees a little bit more of an evolution to ATM," said Thomas Nolle, president of CIMI Corp. in Voorhees, N.J. "They don't take the view that there's going to be a radical displacement of traditional LAN technology by ATM; they do seem to think that there's going to be a fairly thorough transition to ATM. 3Com

seems to be more concerned about evolving the router into what is very distinctly an address resolving role and out of a transmission role."

Initially, HPSN assumes that as demand for bandwidth grows, users will add more LAN segments to the floors in their building and interconnect those segments with fiber-based downlinks to a router in the basement. But as they add those LAN segments and downlinks, they will be limited by the router's port capacity and the number of IP addresses they can assign to new segments.

To bypass these limitations, 3Com suggests adding port grouping to the router. With port grouping, LAN segments that are physically divided by different floors in the building are bridged together into a single virtual workgroup that's assigned a single IP network address, instead of one for each segment.

To handle increasing traffic between buildings in a campus network, HPSN has introduced routing clusters. Routing clusters are formed using switching hubs that provide high-speed switched links — running at 10M bit/sec, 100M bit/sec FDDI or 52M bit/sec full-duplex ATM — to each building's router.

Stage 2 of the HPSN strategy involves creat-

ing high-speed downlinks to increase bandwidth and reduce segmentation.

This stage extends the port grouping concept to virtual channels, which let users support multiple LAN segments with one physical 155M bit/sec ATM downlink. A single ATM link can easily support 30 Ethernet or 20 16M bit/sec token-ring segments, said 3Com.

Also implemented in Stage 2 is route caching, which scales performance by distributing frame-forwarding logic to the router's port interface cards while centralizing route determination in the router's routing engine. The central routing engine determines the route to a destination and tells the port-switching engine how to forward frames to that destination.

The port-switching engine caches this information in memory and is responsible for routing only the frames from end systems associated with the attached downlinks.

Stage 3 of HPSN introduces routed ATM into the collapsed backbone. In this scenario, the ATM downlink is connected to an ATM cell switch that connects each virtual channel — and, therefore, each LAN segment — to a specific router or router port. This improves performance because the traffic load is shared across rout-

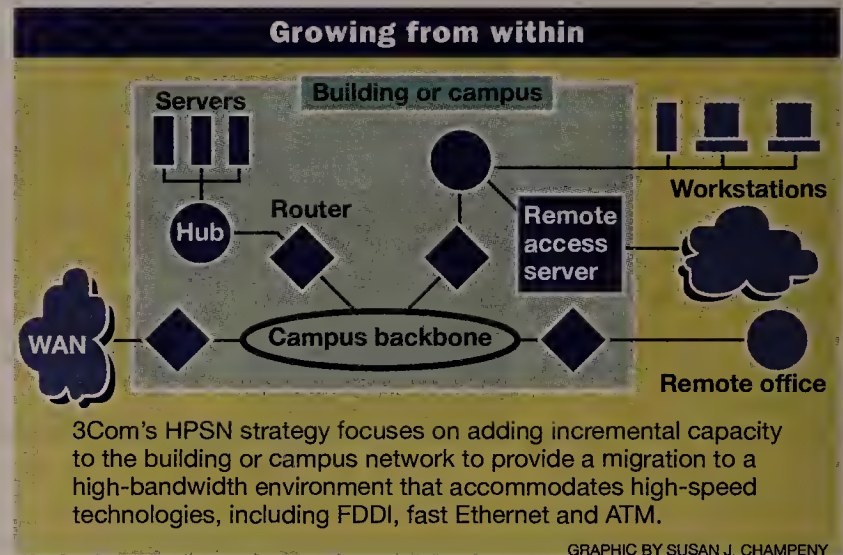
ers, and LAN segments that make up a virtual workgroup can all be directed to a single router.

The ATM switch also performs route determination, which until now was the responsibility of the collapsed backbone router. Route determination sets up virtual channels between communicating nodes.

Adding router determination capabilities to the ATM switch allows users to combine the forwarding speed and low latency of ATM switches with the traffic control of routing, according to 3Com.

"[HPSN] reflects the inevitability of ATM," CIMI's Nolle said. "It reflects the realization that most data relationships are transport connection-oriented. If you gave users an infrastructure that could support controlled, connection-oriented relationships, somebody would write [applications] to it, and that would be the end of connectionless." □

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Firm on alert with disaster recovery SWAT team

Northrop prepares for the worst, details 34-step plan of action if problems occur.

BY ELLEN MESSMER

Los Angeles

Northrop Grumman Corp. is prepared for the worst.

The aerospace company has devised a disaster recovery plan as rigorous as those followed by banking institutions, which are compelled to do so under federal regulations.

Daily backup of all mainframe and LAN data is the norm at Northrop, and should computer or network facilities face critical failure, the company's 34-step disaster recovery plan will dictate an organized sequence of action.

Lack of a plan can have dire consequences, as the Westin Bonaventure Hotel here discovered in October when its mainframe and telecommunications system went down, leaving hotel clerks without reservation or room occupancy information for days. The failure left thousands of angry visitors stranded without rooms at the start of the National Association of Broadcasters convention — which is not likely to be held there again.

The first step in any disaster recovery plan is to get a handle on corporate software and hardware assets.

Northrop has compiled an inventory of all its manufacturing and business applications, assigning a priority to each.

"Priority 1 we can restore within 24 hours, Priority 2 within days, and Priority 3 applications will be done after 1 and 2, which could take 30 days or more," said Robert Peoples,

information security analyst at Northrop.

The manufacturing assembly line for the F-18 airplane is a top priority, with a maximum one-day window for restoration through alternative facilities.

Storage of backup tapes off-site is a daily ritual at Northrop, with the company using several different vendors, including Long Island firm Van Dirk, Inc., to house both mainframe- and LAN-based data around the country.

If Northrop's data center were disabled, the storage site would be instructed to transfer tapes to the firm's backup provider, SunGard Recovery Services, Inc.

At SunGard's Chicago "hot site" of mainframes and personal computers, Northrop employees can start data processing and transfer data over a T-1 line to any site selected as the company's remote operations center where employees can continue working.

One of Northrop's cafeterias, for example, can be converted into a remote operations center since it is designed as a shell that can be easily dismantled to reveal network cabling for telephones and computers.

When problems hit a Northrop facility, the first calls to action go out to the vice president of information systems and the disaster recovery director. Then, team leaders are called upon to tally the damage, providing an assessment checklist that helps the security director decide whether to go off-site or stay on-site for restoration, or some combination.

If the situation is serious enough to set up a remote operations center, the chain of communication is extended to include the company's public affairs division, legal counsel and management team

leaders who tell employees of the problem.

Just a few years ago, disaster recovery planning centered around duplicating mainframe processing. But the proliferation of interconnected LANs has added complication and expense.

"SunGard, for example, charges for every different type of equipment you use," Peoples said.

He pointed out that establishing corporate equipment and software standards helps simplify disaster recovery because the same systems will be available throughout a firm. ■

Disaster recovery checklist

- ▶ Take inventory of all hardware and software, and prioritize applications in terms of how quickly they must be recovered.
- ▶ Establish company-owned, off-site, data processing, backup site or secure a contract with disaster recovery service.
- ▶ Develop network configuration documentation as well as document recovery guidelines and procedures.
- ▶ Implement a simulation and testing program.

Avistar

Continued from page 17

But uncompressed video consumes an enormous amount of bandwidth. That's not a problem when sending video signals over separate wire pairs, but Avistar recommends users install a codec in the rack-mounted switch/server to compress video signals before transmission on a wide-area basis.



"Instead of keeping the codec at the desktop, the server will let users share the codec when it's needed," Mitchell said.

The Avistar system is getting a workout at financial institutions such as The Chase Manhattan Bank, N.A. and J.P. Morgan. At Chase, investment managers in New York, Geneva, London and San Francisco have 19 Avistar desktop units up and running over Ethernet LANs connected to the company's private wide-area backbone.

"We use it daily in investment banking," said James Zeigon, executive vice president in Chase's Private Bank division. "We use it for face-to-face meetings, and sometimes we have clients come in and talk to their portfolio managers."

Chase soon will be adding another two dozen Avistar workstations to its conferencing network. Zeigon said the Avistar system performs "fantastically," but that the main drawback is its price.

"The technology is expensive, but as time goes by and more people use it, the price is bound to come down," he said. ■

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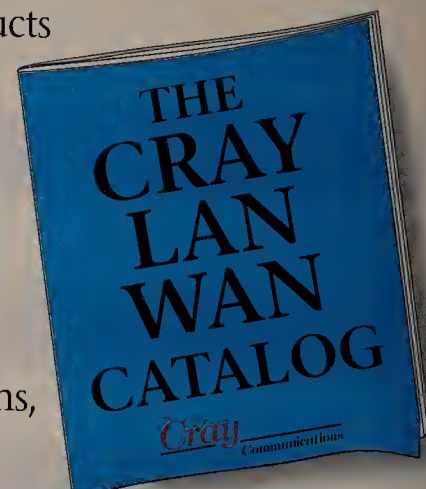
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WE INTEGRATE LANs AND WANs

by Dan Minoli

1995: the year of video in enterprise nets?

These days, there is much written in the trade press about all types of new video technologies, including multimedia, desktop and room-based videoconferencing, video services from carriers and video dial tone. So how much of this video technology will find its way into mission enterprise networks, and how soon?

The answer: Immediately. That is, immediately after the quality of the video is similar to that found in today's commercial TVs and after real, productivity-enhancing applications are identified.



It's true that 1,000-MIPS systems are nearly here, but unless the human factors — getting people to overcome their fear of the technology — are worked out, there's no telling whether vendors that concentrate only on video can expect to make a decent return on investment. And

the picture quality of most of this equipment still leaves a lot to be desired.

The individuals for whom these systems are being deployed have watched from 25,000 to 50,000 hours of TV in their lives and have gotten used to that level of quality. While some computer science purists may be impressed with the technical beauty of the compression algorithms used in videoconferencing systems, and proponents of switched 64K bit/sec service (pick any kind) might be bullish on the technology, the generic enterprise network user will not be a willing recipient of these nascent capabilities.

I say this based on recent experiences. This semester, I'm teaching a multisite communications course using standard videoconferencing equipment from one of the major communications companies.

The course is mandated by the company's management and serves the purpose of career advancement. And the participants do not have to travel after work from their home location.

Having lectured on the side for 10 years and having done live TV, I know some techniques for keeping remote participants engaged, making them feel like part of the group. It involves screen dynamics — talking into the camera and constantly switching between overheads and myself, zooming in and out, making camera adjustments and using whiteboarding techniques.

Yet these sophisticated participants, motivated by potential career gain and required by management to learn the material, find the proceedings boring — basically, they expect a Hollywood-quality production.

A few months back, I ran a focus group involving very large companies and institutions. One institution in New York had an abundance of fiber in the street and many buildings outfitted with videoconferencing rooms.

Yet we are told that few people use the facilities, even though the service is totally free to the individual users.

Another organization has a dozen foreign

locations on five continents, but again, the telecommunications department finds users are extremely reluctant to employ videoconferencing.

In the latter case, there was a quality issue related to the organization's limited bandwidth capacity.

In the former, it was more human factors — people haven't been using video systems and fear technological change.

Certainly, the great technical accomplishments of the last few years are awe-inspiring. (The computer I first programmed on was a dishwasher-size PDP-8 with 8K bytes of RAM

on Cheerios-size magnetic donuts with real crosswires as memory.)

However, a technology must enhance productivity, not slow it down. So we'll probably see video in commercial enterprise networks immediately — all right, immediately after 1998.

♦♦Dan Minoli is a principal consultant at DVI Communications, a full-service consultancy in data, voice, and video based in New York. He can be reached at minoli@pipeline.com. Minoli shares this space with Scott Bradner, whose column will appear next week.

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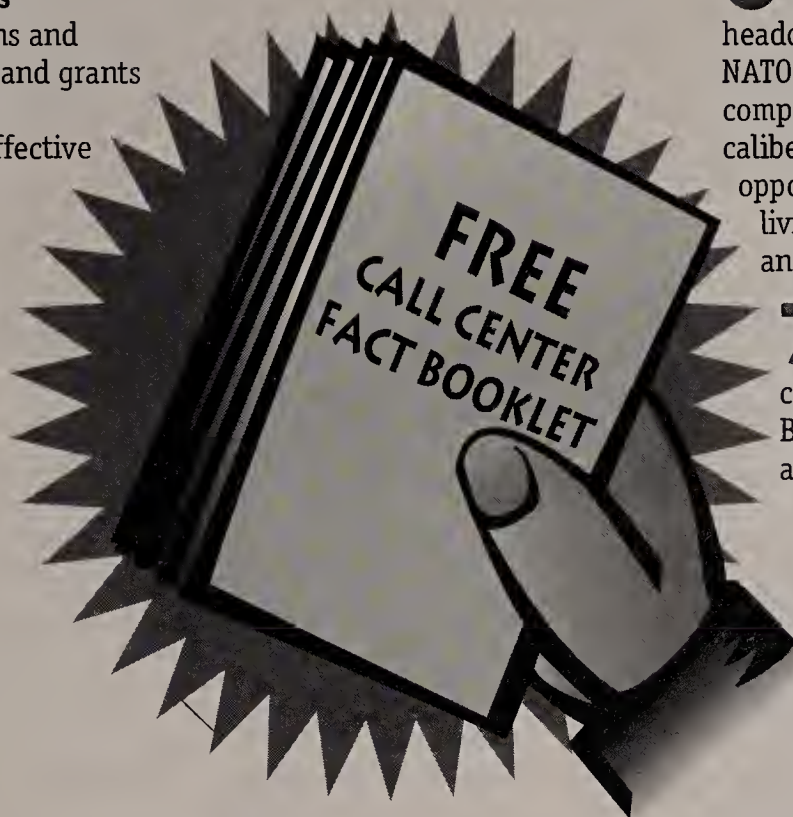
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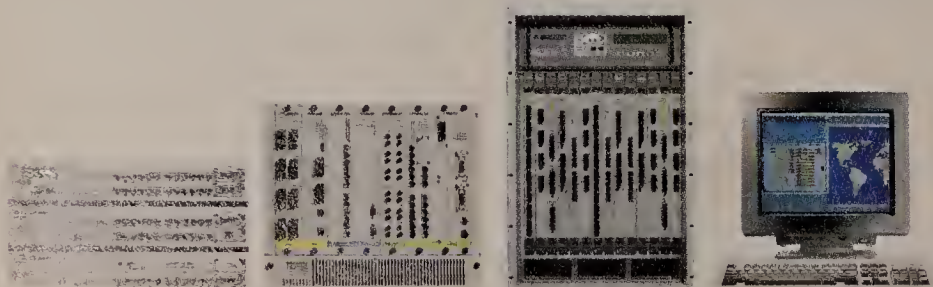
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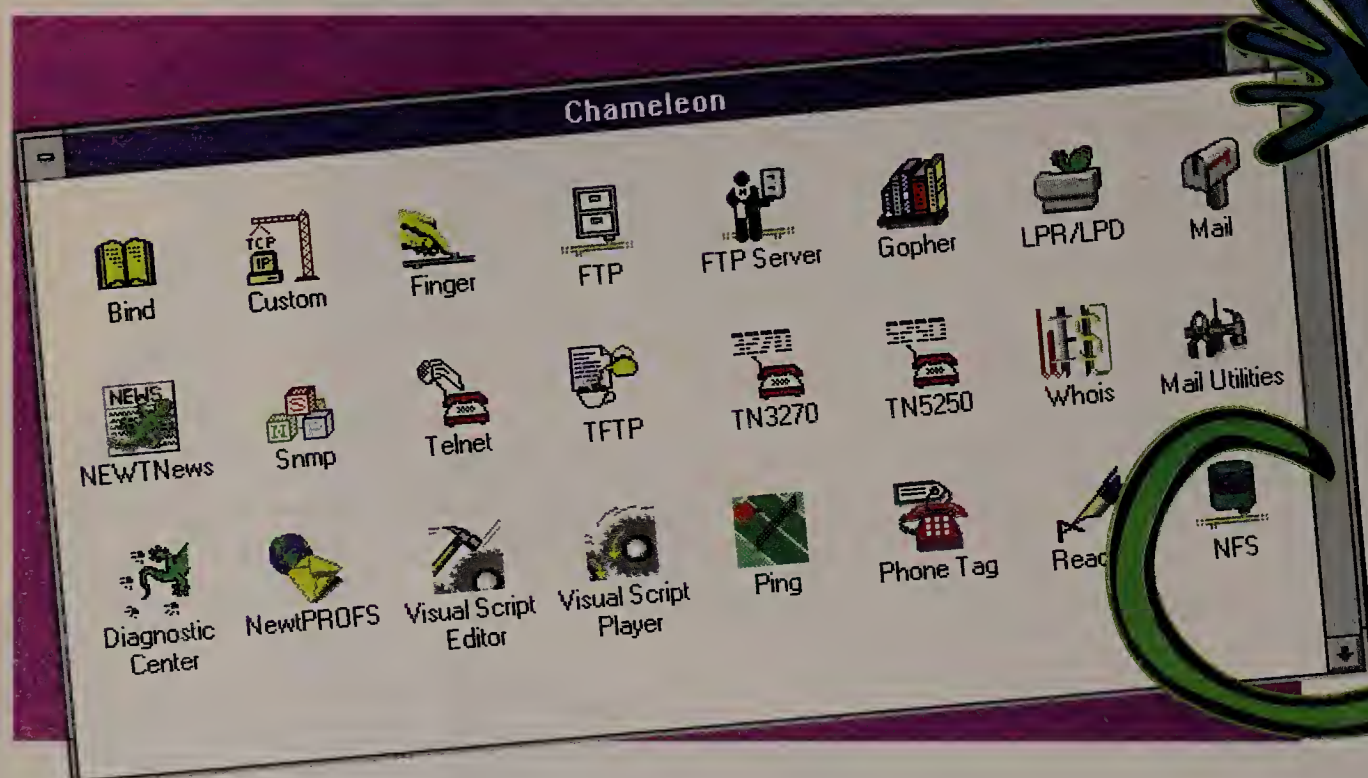
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New from IBM: Intelligent Ethernet and Token-Ring hubs.

Given the explosive growth in networking, it's no surprise that LAN administrators need help managing their environments.

IBM introduces three outstanding new helpers: the IBM 8224 Ethernet Stackable Hub and the IBM 8230 Token-Ring Controlled Access Unit (Models 3 and 13).

These intelligent hubs bring cost-effective, centralized management to the smallest workgroups. And their modular design allows them to grow as you grow. All models support SNMP network devices, so you can monitor and control remote workgroups from a single workstation with programs such as NetView®/6000.

1 800 IBM-CALL 

Affordable hubs for w



8224 Ethernet Stackable Hub

The new IBM 8224 is a premier remote site and workgroup Ethernet hub with stackable units of 16 10BaseT ports each, plus an optional media expansion port that can connect to an existing 10Base2, 10Base5, or fiber Ethernet network.

An 8224 Model 1 is an unmanaged (yet manageable) unit that can be stacked up to ten together in a standard rack or on a desktop. Model 2, with an SNMP agent, can manage a stack of nine Model 1s, to provide a total of 170 ports. And, unlike most competitive hubs, stacked units can be separated by as much as 250 feet. The 8224 also accommodates LAN growth with cascading through the media expansion port. To alleviate congestion, you can also segment an 8224 stack to isolate bandwidth-hungry servers and workstations.

The 8224 supports out-of-band management of a remote site via SLIP protocols. It supports SNMP MIB II, the hub repeater MIB, and the Novell® Repeater MIB, with management by DOS or AIX® applications, and SNMP over IP and IPX for management in a TCP/IP network and Novell NetWare® Management Station. For mission-critical applications, a second Model 2 can provide management redundancy.

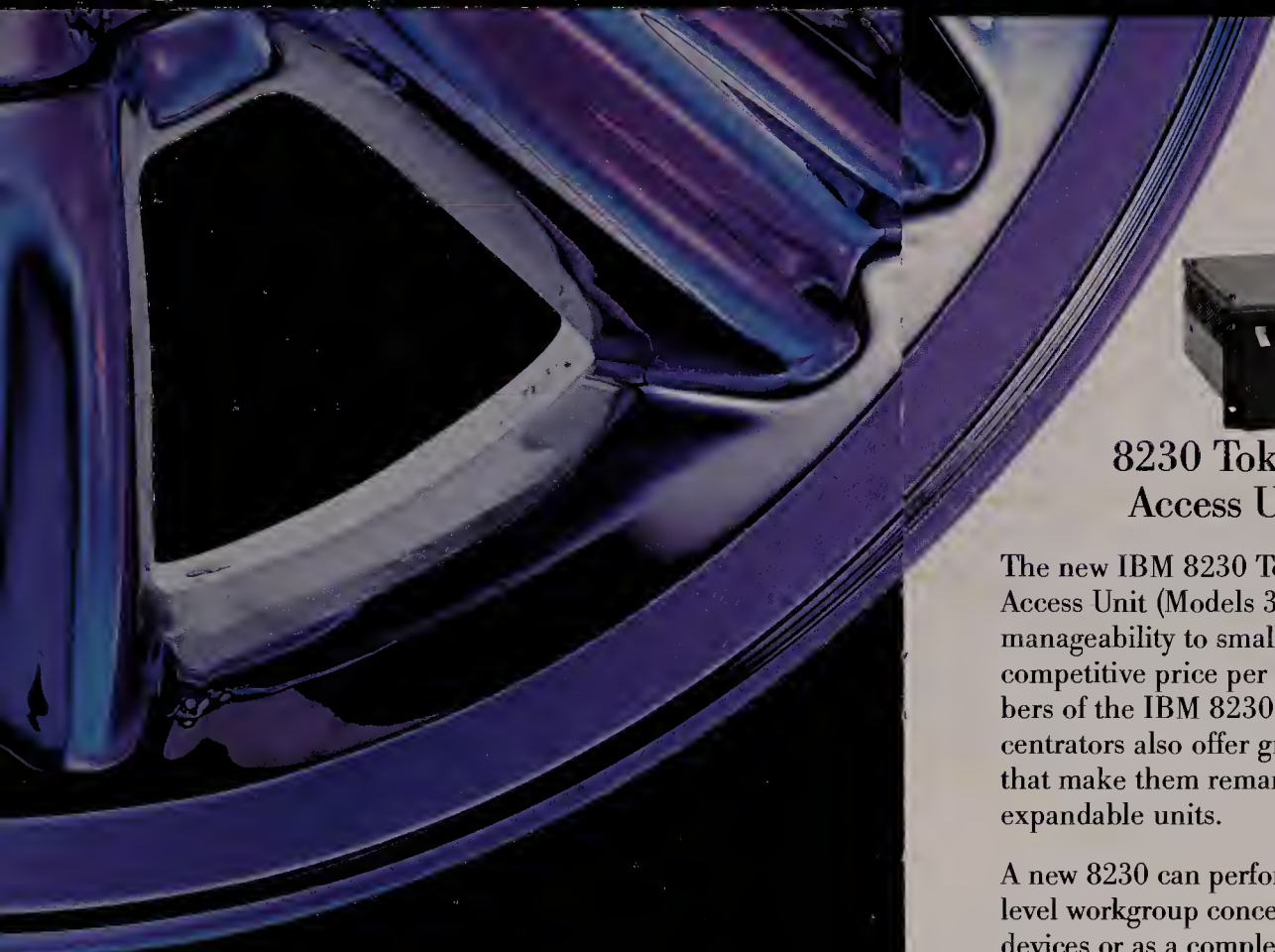


8222 6-Port 10BaseT Workgroup Hub

Now you can add an entire workgroup to your LAN without rewiring. Ready to concentrate inexpensive, twisted-pair wiring, the IBM 8222 allows you to link as many as seven PS/2® or PS/ValuePoint™ computers or compatibles to a new Ethernet 10BaseT LAN. Six additional computers can be linked with each 8222 cascaded through either AUI or 10BaseT ports.

In addition, the 8222 hub automatically disables (partitions) any port connected to a station causing repeated collisions, then re-enables the port when the condition clears.

orkgroups of all sizes.



8230 Token-Ring Controlled Access Unit (Models 3 & 13)

The new IBM 8230 Token-Ring Controlled Access Unit (Models 3 and 13) brings intelligent manageability to small workgroups at a very competitive price per port. These newest members of the IBM 8230 family of intelligent concentrators also offer granularity and modularity that make them remarkably versatile and expandable units.

A new 8230 can perform as an affordable, entry-level workgroup concentrator for just a handful of devices or as a completely managed, full-function, 80-node hub with dual ring redundancy. You can configure it with 2-, 3-, or 4-port Lobe Insertion Units (LIUs) that plug easily into the base unit for more port capacity as needed. Also available are 20-port Lobe Attachment Modules (LAMs) and remote 16-port LAMs for linking network devices a full 200 meters from the base unit.

With a new 8230, you can manage your Token-Ring LAN via LAN Network Manager, or an SNMP manager such as NetView/6000. Enhanced error and status displays help you identify problems fast. And for LANs requiring extra reliability, an optional dual ring redundancy feature is available for use with Ring-In/Ring-Out modules.

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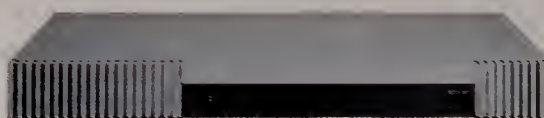
8260 Multiprotocol Intelligent Switching Hub

The new IBM 8260 "super hub" is the platform for the next generation of high-speed networks. It provides for easy migration to asynchronous transfer mode (ATM), multimedia LANs and other technologies that require very high bandwidth.

The 8260 chassis accepts all media and interconnect modules from an IBM 8250, so it will protect your existing network assets.

With an advanced passive backplane architecture extending that of the 8250, the new 8260 manages multiple segments concurrently. This very high density system can handle up to eight Ethernet, 17 Token-Ring or eight FDDI networks in a single 17-slot, fully managed hub.

Beyond its leading edge, ATM-ready design, the 8260 introduces the Intelligent Power System, with as many as four power supplies, that dynamically distributes the load evenly among all sources. The 8260 also introduces a new Distributed Management Architecture, enabling concurrent management of multiple LAN segments.



8235 Dial-In Access to LANs Server

Extending enterprise network resources to mobile computer users is now easier than ever. With the IBM 8235 Dial-In Access to LANs Server (DIALS), remote users can have full, transparent access to all your network services from any location that has dial-up phone service.

The 8235 DIALS is a high-performance, multiprotocol, multiport remote networking server that provides full-function Token-Ring or Ethernet connections. It supports protocols widely used in NetBIOS, NetWare, 3270 SNA, and TCP/IP.

performance choices that fit expanding networks.



8250 Multiprotocol Intelligent Hub

The advanced IBM 8250 is versatile enough to protect your current LAN investment and serve as the cornerstone of your network for the future. An 8250 lets you create and connect LANs, change configurations, switch users and perform other tasks without major rewiring.

Build the 8250 system that fits your environment with your choice of more than 50 modules (concentration, interconnection and management), plus powerful management via NetView/6000.

The 8250 simultaneously supports Token-Ring, Ethernet and FDDI topologies over a wide variety of media. For future upgrades or changes, just add new "hot-pluggable" modules to your existing hub.

Management options include centralized or distributed, out-of-band locally or remote, in-band through SNMP, and remote log-on via TELNET from a TCP/IP station.

8250s also include fault-tolerant features and redundancy to keep client/server LANs in mission-critical applications up and running in the event of problems or hardware failure.



8271 EtherStreamer Switch

Is your Ethernet LAN getting clogged? The IBM 8271 EtherStreamer™ Switch can boost network performance at a very low cost per port. This high-performance, standalone device interconnects as many as eight 10BaseT Ethernet LAN segments or a single node, transports traffic at full media speed, and extends network bandwidth from 4 to 8 times that of a single Ethernet segment. When coupled with our full-duplex EtherStreamer adapters, you can now offer 20Mbps Ethernet performance for an individual workstation or a server.





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Auspex server enhancements

Product	Availability	Pricing
DataGuard	1Q 1995	Series 200 servers: \$15,000; Series 500 servers: \$25,000
90-MHz HyperSPARC host processor with 32M bytes of memory	Now	Upgrades start at \$5,000
Network processor upgrades (3 configurations): 1 FDDI/SAS fiber and 4 Ethernet 1 FDDI/SAS (MLT-3) and 4 Ethernet 1 FDDI/DAS (fiber) and 2 Ethernet	Now	\$44,900 each
9G-byte hard drives	Now	\$7,990 each

Auspex improves server reliability, connectivity

MARGARET DORNBUSCH

Santa Clara, Calif.

Auspex Systems, Inc. last week introduced new software to beef up the fault tolerance of its servers and announced hardware upgrades for the servers designed to provide better performance and broader network connectivity.

The new software, dubbed DataGuard, enables the company's NetServers to continue delivering data and services to users even during server application or operating system failure. The software allows the server to reboot itself without interrupting the flow of

data to users.

Operating system and application failures cause about half of network server disruptions, said Dave Stuart, an Auspex product marketing manager. DataGuard acts as a fire wall between the host processor — the NetServer component that communicates with the network operating system — and the sections of the server that supply files and data to users.

The software also allows new applications or minor operating system releases to be installed on the host processor without disrupting Network File

See *Auspex*, page 28

University studies up on Novell's routing software

BY KEVIN FOGARTY

Ames, Iowa

Novell, Inc.'s soon-to-be-released Multiprotocol Router (MPR) 3.0 is an affordable, effective alternative to hardware-based routers and provides an easy way to connect NetWare LANs across the wide area using frame relay lines, according to one beta user.

Iowa State University of Science and Technology is testing a beta version of MPR 3.0 for use in a statewide outreach network designed to act as a help desk on everyday topics for Iowans.

"The mission is to provide data based on unbiased research to the people of Iowa to help them make better decisions," said Randy Dalhoff, assistant director of computer and network repair services at Iowa State. "It's set up so a farmer can walk in [to an outreach office] with a leaf and ask what disease it has."

When complete, the network will involve 107 sites across Iowa (NW, Nov. 21, page 64). Each of the sites runs a NetWare server supporting MPR 3.0 and connected to personal computer or Apple Computer, Inc. Macintosh clients via AppleTalk or IPX. MPR supports both protocols and converts data packets to TCP/IP for broadcast over the WAN.

The WAN is based on a US WEST, Inc. frame relay network within local regions as well as a private 2,600-

mile fiber net built by the state of Iowa across various regions.

The school has linked about half the 107 existing sites to the network since the rollout began last June; the rest should be on-line by July.

SECOND CHANCE

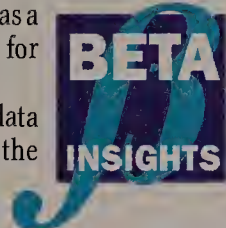
The current rollout is actually a second try at linking outreach sites, Dalhoff said. The first was stillborn partly because MPR 2.11 offered neither the reliability nor manageability of Version 3.0, he added. Version 2.11 also lacked support for frame relay, the latest version of NetWare and the mix of net protocols the network needed.

"We had lots of problems with 2.11," Dalhoff said. "We had a patch to make it work with frame relay, but it didn't work. The routing software worked with TCP/IP but not IPX or AppleTalk, and it didn't support NetWare 4."

Being able to run the remote sites on NetWare 4.X is important to the project's success, even though the university maintains almost 100 servers here that run NetWare 2.X or 3.X, Dalhoff said.

Moving to 4.X should be worthwhile because, among other things, it is easier to maintain at remote sites that lack expert network technicians. NetWare 4.X's integrated NetWare Directory Services (NDS) support also will let technicians log on to the network

See *Routing*, page 26



BRIEFS

Proteon, Inc. of Westborough, Mass., recently announced that it has begun shipping the ProNet/E family of **Ethernet** products, a suite of 10 new offerings. Prices for the ProNet/E Ethernet adapters start at \$69, prices for the intelligent hubs start at \$299, and switches begin at \$3,799.

Proteon: (508) 366-2800.

Microsystems Software, Inc. unveiled Sentry-WAN and Rev-'em-Up add-on modules to its Software Sentry license metering and software asset management product. Sentry-WAN, shipping now, provides global license sharing across multiple servers. Rev-'em-Up, which will ship at the end of this month, provides automatic electronic software upgrades. The modules each cost \$195 per server.

Microsystems Software: (508) 879-9000.

Apple Computer, Inc. announced immediate availability of its Apple Redundant Array of Independent Disks (RAID) Software for PowerPC Workgroup Servers 6150, 8150 and 9150. It provides users with RAID Levels 1 and 0 and works with many third-party disk drives. Apple recommends customers use external disks with a minimum capacity of 200M bytes that are fully compatible with Apple's SCSI Manager 4.3 software and SCSI-2. Apple RAID Software is compatible with System 7.1.2 and will be bundled for free with all PowerPC processor-based Workgroup Servers.

Apple: (408) 862-3385.

AT&T GIS readies Pentium-based servers

BY PEGGY WATT

Dayton, Ohio

AT&T Global Information Solutions (GIS) launched its entry-level Globalyst server line last month with the release of two new Pentium-based servers that feature room for growth.

The Globalyst Server Model 3416XL, designed to anchor large LANs and support database software, comes with a choice of a 90-MHz Pentium CPU or a module for two 66-MHz Pentium chips that provide symmetric multiprocessing (SMP).

The module is also available with just one 66-MHz Pentium chip.

The 3416XL has as many as 11 drive bays, built-in error-checking memory and an optional Redundant Array of Inexpensive Disks (RAID) controller.

The AT&T GIS Globalyst Server Model 3404 runs on a 60- or 90-MHz Pentium processor and features a Peripheral Component Interface (PCI) and seven network interface and peripheral slots — four Extended Industry Standard Architecture slots, two PCI slots and one shared slot.

"This is a critical area for AT&T," said Brad Day, an analyst with Dataquest, Inc. in Framingham, Mass., of the company's foray into entry-level servers. "It's important for [AT&T] GIS to have a drill-down option" to complement its line of high-level servers, he said.

The Globalyst Server Model 3404 is

AT&T GIS offerings are built to grow with a user's LAN, by providing a slot for a second CPU in the 3416XL, and a large number of expansion slots in both servers.

The fact that the 3416XL is ready for SMP was a plus because it allows for growth, said Al Schulman, project manager at Bank South Corp. in Atlanta. The

bank is buying 150 of the servers to link some 2,000 AT&T workstations at more than 150 bank branches.

The systems will replace an IBM 4700 and PS/2 systems that act as terminals, Schulman said.

The company chose Microsoft Corp.'s Windows NT

as the server operating system, one of several available from AT&T GIS. Other choices include Novell, Inc. NetWare 3.12 and 4.01, and UnixWare 1.1, as well as The Santa Cruz Operation, Inc.'s Unix 3.0.

The AT&T GIS workstations will run Windows for Workgroups, and Bank South may upgrade them to Windows 95 when it ships, Schulman said.

©AT&T GIS: (800) 796-9476.

Server selection				
Product	Processor options	Network and peripheral slots	Standard memory	Pricing
Globalyst Server Model 3416XL	Two 66-MHz Pentiums, one 60-MHz Pentium or one 90-MHz Pentium	Eight EISA, two serial and one parallel	32M bytes of RAM and a 1G-byte hard disk	Less than \$10,000
Globalyst Server Model 3404	60- or 90-MHz Pentium	Four EISA, two PCI and one shared	16M bytes of RAM and a 540M-byte hard disk	Starts at \$3,000

GRAPHIC BY TERRI MITCHELL

positioned as an entry-level file and print server, offering "Pentium performance at 486 pricing," according to Jack Knapp, assistant vice president of entry-level servers for the worldwide server marketing division of AT&T GIS, an AT&T division based here.

"In the past, customers were satisfied with putting a PC on a LAN and designating it as the server," Knapp said. But the

Windows Connectivity Forum

Windows 95 gains parallel port power

Windows 95 is winning rave reviews for its powerful networking capabilities designed to make the operating system a client of choice for Novell, Inc. NetWare and other corporate LANs. But did you know that Microsoft Corp. is also quietly building new LAN technology into Windows 95 that will offer big benefits to small/home office and mobile computer users?

This new technology will enable Windows 3.11 and Windows 95 machines to transfer data between parallel

ports at near-Ethernet speeds. Typically, parallel ports are used to attach to printers, but many users do not even employ their parallel ports, which are considered too slow for many tasks.

If you are a Windows 95 tester, you can try the new parallel port feature in the latest beta release. To do so, click the Start button, then select Programs, Accessories, Direct Cable Connection.

You can set up a basic connection using a Traveling Software, Inc. LapLink-compatible cable. Or use a special cable, known as a Universal Parallel Cable, to significantly accelerate throughput between parallel ports.

When a Windows 95 laptop computer is linked to another desktop machine via the parallel port connection, the Windows 95 system becomes another node on the network with full server access privileges.

For laptop users, this means external pocket network adapters are no longer required for many types of connections to the corporate LAN.

APPLETALK FOR WINDOWS?

This new connectivity option is the Windows equivalent of Apple Computer, Inc.'s AppleTalk, which the firm has been building into every Macintosh system since the mid-1980s.

While comparatively slower than most other network offerings, AppleTalk's advantage is that almost anybody can easily network two or more Macintoshes together using off-the-shelf cabling.

Microsoft has licensed parallel port network technology from a company called Parallel Technologies, Inc. (PTI), which provides software as well as cable adapters.

PTI engineering wizards Don Schuman and Jay Lowe have been

designing high-performance parallel port hardware as well as software peripherals and utilities for several years.

PTI is now licensing its high-speed Universal Parallel Cable and software technology to computer, accessory and software providers. Expect these high-speed networking cables to be widely available when

Windows 95 ships this coming spring.

The cable contains electronic circuits that speed up throughput and allow fast con-

nections among different types of parallel ports.

While all parallel ports use the ordinary 25-pin D-connector, you will be hearing more about the three types of parallel ports in days to come. The choices are: standard, Enhanced Parallel Port (EPP) and Extended Capabilities Port (ECP).

The standard port takes its design from IBM's original PC. But by the late 1980s, a new upwardly compatible design was needed to support fast parallel port peripheral devices. In 1990, Xircom Products Corp., Zenith Data Systems Corp. and Intel Corp. jointly developed EPP, a high-speed, bidirectional specification later modified and included in IEEE Standard 1284.

The IEEE also incorporated Microsoft and Hewlett-Packard Co.'s ECP specification into IEEE 1284.

IEEE 1284-compatible chipsets are now appearing in many popular motherboards and I/O cards. Microsoft recommends ECP-compatible ports as part of the Windows 95 hardware platform.

Download a free utility program called PARA14.ZIP from WINCON Library 1 to determine the types of parallel ports in your machines.

This program is also available via Internet FTP at netlab2.usu.edu/misc.

CompuServe®

To participate on the Windows Connectivity Forum, type **Go Wincon** at any prompt on CompuServe. For those of you who are not CompuServe subscribers, *Network World* and the Windows Users Group Network are offering a free membership signup by calling (800) 524-3388. Ask for Operator 426.

NET RESULTS

by Mark Gibbs

Intel inside: an unknown quality

The truth must be told. Intel Corp. produced a chip that can give the wrong answer.

This has happened before, but this time it is not just any run-of-the-mill chip. Oh no. The sinful silicon in question is . . . (drumroll, please) the Pentium.

Admittedly, this paragon of previously presumed perfect processing, this acme of advanced automation, this doyen of digital delight is wrong only once every billions or trillions of floating point calculations.

Even then — if I understand Intel's somewhat cavalier statements about the problem — you need to supply just the right numbers in the right sequence to just the right number of decimal places.

The company also seems to imply that the wind has to be coming from the east and you need to be wearing a polyester leisure suit for the problem to occur (although you already have a problem if you're wearing a polyester leisure suit, but I digress).

"We concluded the average end user might see a problem once in 27,000 years. Most people don't keep their PC that long," said John Thompson, Intel's spokesmodel.

The real surprise in all of this is Intel was just a tad naughty about this bijou glitchette in the Pentium; the company knew about it early last summer and did not say a word.

It was not until Thomas Nicely, a mathematics professor at Lynchburg College in Virginia, published an article in the Nov. 7 issue of *Electrical Engineering Times* that the grim truth was revealed.

Intel reckons that of all the millions of Pentium users, only one or two lucky ones have found the problem. Indeed, Thompson is reported to have said, "It's basically a non-issue. It's had no impact on our ramp [up] or shipments."

Well, Intel and Thompson, we're very pleased for you. We would hate to think that it was not business as usual for you.

But not everyone is convinced that the problem is quite so trivial. William Kahan, a computer scientist at the University of California at Berkeley, said in an

interview with the Associated Press that some computer users might find an error in their work but never realize what caused it.

Just imagine, you get an odd result in your calculations and you run it through trusty ol' Betsy again and voila: same results . . . must be right. It has "Intel inside" after all. But what if the result did not look odd and was still wrong. This could mean, for example, that sometime an airplane with 500 people might turn into a ditch digger.

In the period between Intel finding the bug and the gaffe being blown, the firm has developed a fix that is now in production — kind of a handy position for Intel to be in now that the silicon has hit the fan so to speak.

The real shock here is Intel's breach of trust. What the hell did Intel think it was doing keeping something like that secret?

Did it think no one would notice? Did Intel think it didn't matter?

The thing Intel seems to have missed is the ethical issues involved. Intel's responsibilities to its customers and its customers' customers are real and profound. However, Intel presumably believed that admitting the problem would be a greater detriment to its image and market than the risk of being "found out."

Well, guys, you have been found out, and the gamble was not worth it.

At the least, a frank admission of the mistake and an apology should be made. More appropriately, some senior heads should roll.

Unless we can be convinced otherwise, "Intel inside" would seem to signify an unknown quantity.

♦ Gibbs is a consultant and writer in Ventura, Calif. He can be reached at (800) 622-1108, Ext. 504, or on the Internet at mgibbs@rain.org.



Pentium fix

A company called MathWorks has made an explanation available on the Internet of the Pentium bug and how to correct for it during the coding process. You can find the information in the newsgroups comp.soft-sys.matlab and comp.sys.intel, as well as on the Web at <http://www.mathworks.com>.



Routing

Continued from page 25

from any attached computer, enabling the technicians to fix problems remotely and avoid being tied to a single server.

NDS also makes NetWare 4.X easier to support over the WAN by creating a single user list that an administrator can use to add users, change rights or reassign resources around the network.

Using a hardware-based router from Cisco Systems, Inc., rather than using MPR, would have worked, but it was easier to load MPR onto a NetWare server. The university's campus here uses Cisco routers on the campus, but Dalhoff said MPR would be an eas-

ier solution for the outreach net.

"MPR provides all the same services as a [hardware-based] router, and it comes all in one box [with NetWare] so people in the remote sites don't have to deal with two machines," Dalhoff said.

Using MPR software also is saving the university between \$32,000 and \$42,000, compared to the cost of Cisco routers.

MPR 3.0 is "remarkably stable for a beta product," said Brian Webster, comanager of the Extension Computing Unit.

The only major glitch in MPR 3.0 is that it would not support the Hewlett-Packard Co. Ethertwist Ethernet adapters on the school's servers. Even subsequent patches from Novell failed to fix this problem, Webster said. However, he

copied an Ethertwist driver from NetWare 4.01 and solved the problem on his own.

Another holdup is not a limitation of MPR 3.0, but rather of the Cisco routers the university uses to direct traffic on its campus here. MPR supports NetWare Link State Protocol (NLSP) across TCP/IP and frame relay, cutting down considerably on router traffic across the WAN. But Cisco routers do not support NLSP across TCP/IP, meaning the university has to maintain an extra Novell router on campus to route such data packets to the Cisco network.

About two-thirds of the outreach network traffic runs through an MPR on campus, the rest goes by Point-to-Point Protocol link to Cisco routers. □

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You do your job. We'll do ours.

HP LaserJet Printers



Apple hopes workgroup hub will ease shift to Ethernet

BY JODI COHEN

Cupertino, Calif.

Apple Computer, Inc. has announced its foray into the wiring hub market with the introduction of a five-port 10Base-T device designed for workgroups.

The Apple Ethernet 10T/5 Workgroup Hub can be used by all devices that have a 10Base-T

Ethernet interface.

Bill Brown, business unit manager for connectivity products at Apple, said his company got into the hub market to help Macintosh users upgrade from LocalTalk to Ethernet.

The workgroup hub comes equipped with an Apple Attachment Unit Interface (AAUI) Connector that is used to plug a transceiver into

the AAUI Connector so devices can be attached to twisted-pair cables. The hub also has four RJ-45 connectors to attach various net devices. It ships with an expansion adapter that lets as many as four hubs connect to build larger networks.

Apple's new hub comes ready to use and requires no additional configuration software. The maximum cable length is 100 meters. An optional external power adapter is available separately for customers who want to power the hub independently of a host computer. The hub draws power from the Ethernet port of the machine that it is plugged into so the power

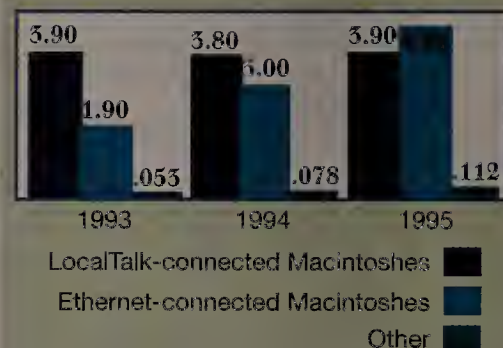
adapter allows the hub to be powered even if the hub device is turned off.

The hub is compliant with IEEE 802.3 standards and supports several network protocols, including AppleTalk, TCP/IP, IPX, Digital Equipment Corp.'s DECnet and MacIPX.

Brown said Apple is entering a crowded market but contends that many users want an Apple connectivity solution.

Apple eyes Ethernet market with new hub

Annual worldwide Macintosh installed base (in millions)



GRAPHIC BY TERRI MITCHELL SOURCE: IDC, FRAMINGHAM, MASS.

"The average workgroup customer wouldn't know [Bay Networks, Inc.] if they fell over them, so we're offering a simple, low-cost Apple product for these users," he said.

The Apple Ethernet 10T/5 Workgroup Hub is available now for \$149.

Brown said Apple may look into developing switched hubs but it wants to first determine how its first hub product is accepted.

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Auspex

Continued from page 25

System service. In addition, DataGuard lets network managers add Small Computer System Interface devices and perform on-line backups during peak hours without disrupting data service.

HARDWARE UPGRADES

Auspex has pumped up the processing power of its servers, as well. The company is replacing a 55-MHz host processor — responsible for handling system and network administration, database processor and other chores — with a 90-MHz HyperSPARC CPU. It will be included in all future NS 7000 NetServer shipments and is available as an upgrade.

Auspex has also boosted the capabilities of its servers' network processors, which handle network connections to the server. The servers can now support as many as 30 Ethernet links or up to eight Fiber Distributed Data Interface network connections.

New network processors include one that allows the NS 7000 NetServer to connect directly to corporate backbones running redundant FDDI rings as well as another for supporting mixed Ethernet/FDDI nets.

The servers can also be configured to handle half a terabyte of data storage with new 9G-byte disk drives.

Auspex customer NeXT Computer, Inc. is looking forward to the increased processing power on its NetServer to improve data backup, said Greg Brandeau, NeXT's director of information systems in Redwood City, Calif. Because the company's Auspex server supports 160G bytes of on-line storage, backups are increasingly time-consuming, he said.

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PRISM 3060 CSU/DSU (Rear view)

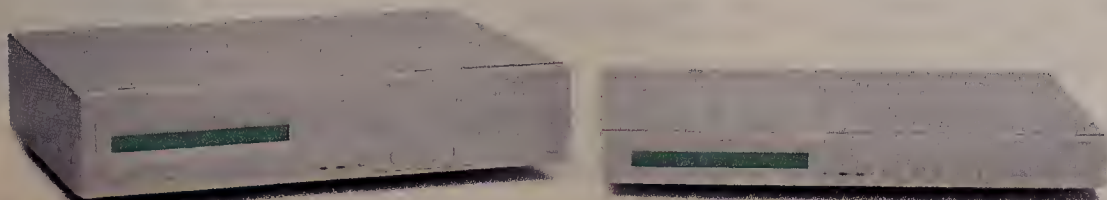


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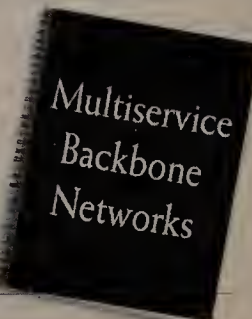
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GLOBAL SERVICES

Voice and Data Services, Mobile Computing, Regulatory Issues and Voice CPE

TELEMEDICINE APPS

Texas building its own private ISDN network

BY ELLEN MESSMER

Austin, Texas

The state of Texas will soon begin building its own private ISDN network because of the difficulty in obtaining ISDN Basic Rate Interface lines from local service provider Southwestern Bell Telephone Co.

The Texas ISDN network will initially benefit hospitals in Harlingen and Brownsville, which are eager to set up telemedicine applications to serve remote rural areas. The network will be built by overlaying ISDN switches on the state's T-1 network and extending

driving our plans to put in the ISDN network, but state agencies, such as education and tax collection, are also interested in ISDN," Denison said.

Plans call for an overlay of the state's T-1 network with eight Teleos Communications, Inc. Enterprise AccessSwitches, which support up to 72 T-1 lines each (see graphic).

Each Enterprise AccessSwitch can also support as many as 152 BRI ISDN ports. Teleos switches with less capacity, such as the Teleos Network AccessSwitch, which supports up to three T-1 lines, will be used on feeder points on the network to reach the ISDN backbone. The cost for the ISDN installation will be about \$5 million, but cost-justification by the Texas general services agency wasn't difficult.

"Considering that the public networks are charging \$250 per hour for T-1 connectivity, the payback for the system will be 16 months of full operation, while the usefulness of the equipment will extend five or more years," the project proposal stated.

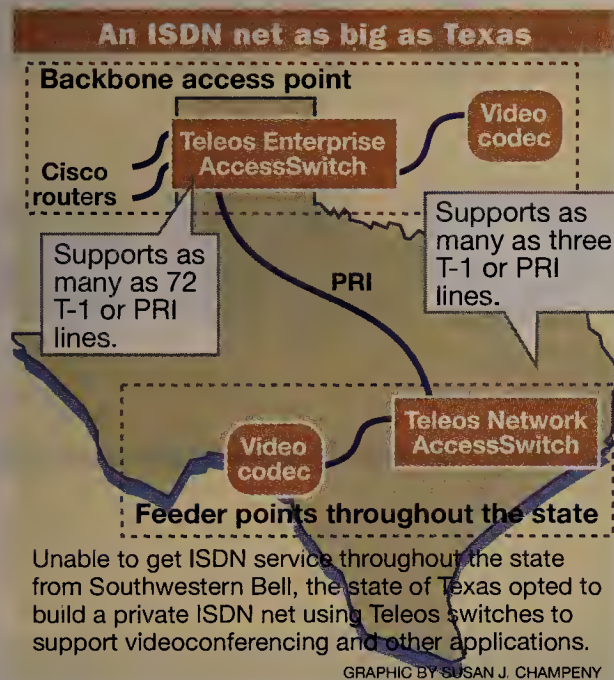
GETTING CONNECTED

Each ISDN access switch will reside in a Texas agency's office that's connected to a T-1 line to create a Primary Rate Interface access site where local users can initiate videoconferencing calls, for example, with an inverse multiplexer. "This ISDN network will provide complete interoperability with the public-switched network, as well," said Dan Deadwyler, Teleos' field application engineer.

Bruce Schremp, the state's network manager, said the ISDN backbone overlay will evolve according to demand from state agencies for private ISDN service. There is not only a problem in getting ISDN BRI service in Texas, but also in obtaining simple digital private lines in general, he added.

The state of Texas, however, is not gung ho on the idea of "be your own Bell," and net managers there look forward to the time when public ISDN BRI service becomes more available.

"We think the public ISDN network will be ubiquitous in about five years," Denison said. "We view the private ISDN network as an interim step." ■



private lines supporting ISDN links to hospital facilities where they are needed.

"In Texas, you can really only get ISDN BRI service in larger cities such as Austin," said Marlys Denison, videoconferencing specialist at the state's department of general services. "But many people are asking for it, particularly for medical care in telemedicine applications, so we're going to provide ISDN ourselves."

VIDEO DOCTOR

Physicians at city hospitals are discovering that videoconferencing is a means to examine and treat patients at clinics in rural areas where specialists are not always available.

A new type of stethoscope, the telestethoscope, lets doctors monitor a patient's heartbeat remotely, and, in the new area of teleradiology, X-ray machines have been adapted for remote viewing. Videoconferencing is also catching on for training of medical staff.

"The telemedicine applications are

Group demands price disclosure

Says users will benefit if FCC requires tariffs on AT&T frame relay.

BY DAVID ROHDE

Washington, D.C.

An association of vendors and systems integrators last week told the Federal Communications Commission that it should make AT&T reveal its frame relay prices in a formal tariff.

In a petition for an FCC ruling, the Independent Data Communications Manufacturers Association (IDCMA) said users are being hurt because they cannot rely on published frame relay prices to make decisions among carriers. But some observers immediately cautioned that requiring frame relay tariffs could lead to the same kind of lockstep pricing and discount-contract gamesmanship recently seen in traditional carrier services. And they warned that carriers' managed frame relay network offerings could be jeopardized if the IDCMA petition is granted.

Most of the regional Bell holding companies, as well as GTE Telephone Operations, file frame relay tariffs with state authorities. Some also file interstate frame relay access arrangements with the FCC.

But neither AT&T nor any other interexchange carrier makes any such filing. Only MCI Communications Corp. and, recently, WilTel, make a nonbinding price sheet generally available, while others offer a price list only by specific request (see graphic).

Along with other fast-packet services, frame relay is regarded as a so-called enhanced service because it involves computer-processed manipulation of user data by the carrier, rather than merely transport. And enhanced services are exempt from tariff mandates.

In its petition, IDCMA attorneys argued that the actual carrier manipulation of frame relay data is trivial compared to what is involved in other enhanced services, such as the information typically offered by value-added packet network providers.

Under AT&T's InterSpan frame relay service, for example, AT&T does not alter the content of the user's data, the attorneys argued. Because the frames are usually assembled in Frame Relay Assembler/Disassemblers on the customer's premises, there is typically no protocol conversion within the carrier network.

Although the carrier works with the data to perform such tasks as choosing frames to discard in case

of congestion, such interaction "facilitates movement of information within the net," the attorneys said.

Users stand to lose bargaining power if the FCC steps in, said Ellen Block, a partner in the law firm of Levine, Lagapa & Block, based here.

Full disclosure on frame relay

Carrier	Tariff prices	Nonbinding price list	No published prices
AT&T			✓
GTE	✓		
MCI		✓	
Sprint			✓
WilTel		✓	
RBHCs	✓		

"The customer is better off if the rates are not tariffed," she said. "Instead, you put out an RFP, you get serious bids, and you bang some heads together."

Tariffs could have proven useful when frame relay was new and untested, but now prices have stabilized, said Rosemary Cochran, principal in the Dedham, Mass., consulting firm Vertical Systems Group. "Few users for any significant application are paying list prices anyway," she added.

But IDCMA said this approach makes it difficult for systems integrators to organize proposals.

"AT&T requires systems integrators to provide detailed information — including the identity of the potential user — to AT&T's Vendor Liaison Program organization before they can receive nonbinding pricing information," the attorneys said. "Even then, the end user must negotiate the final price and contract directly with AT&T."

In its petition, IDCMA also called managed frame relay networks, under which carriers purchase and monitor equipment from recommended vendors on behalf of customers, an illegal bundling arrangement.

But the petition incorrectly fingered AT&T's Accu-WAN managed private-line service instead of the InterSpan Extended Connectivity Option (ECO). And an AT&T official rejected the bundling charge, noting that ECO is an optional InterSpan offering. ■

BRIEFS

AT&T and Mercury Communications, Ltd. in the U.K. will offer a two-way **private digital service** between the U.S. and the U.K. called Enhanced International Accunet Digital Services, to be available mid-February 1995. Operated jointly by AT&T and Mercury, the service will offer customers a single point of contact for voice and data circuits ranging from 56K to 2M bit/sec.

Competitive access provider **Teleport Communications Group (TCG)** will soon begin competing

with Southwestern Bell Telephone Co. in Texas for **Centrex** services. TCG is currently installing Centrex switches in **Dallas** and **Houston**, with availability of the service expected in early 1995.

Travelers at Chicago's **O'Hare International Airport** can now plug their computers into stand-alone information stations and send data to another location. **Ameritech Corp.** said it has developed a new **modem docking station** that acts much like a

pay phone but instead allows computers to talk to each other. Users can pay for the service with their Ameritech calling card at regular calling card rates.

Northern Telecom, Inc. has signed a \$65 million agreement with **GTE Telephone Operations** for outfitting GTE's U.S. network with DMS central office switching equipment. The DMS-10 and DMS-100 SuperNode gear should allow GTE to modernize its rural and suburban net segments with features such as caller identification and enhanced 800 services, GTE said.

Defense Dept. pushes forward on customized ISDN migration

BY ELLEN MESSMER

Washington, D.C.

In a long, slow march toward ISDN, the Department of Defense is abandoning Centrex service in favor of a customized version of ISDN.

The service, purchased under its 10-year Telecommunications Modernization Project (TEMPO) contract, differs from the standard known as National ISDN 1 by providing the military with an added set of call control features as well as access to defense networks globally.

More than 150,000 military users at 180 sites in Virginia, Washington, D.C. and Maryland are required to purchase a variety of equipment and services off the TEMPO contract, and at least half of them are choosing ISDN instead of analog lines.

The contract was awarded to Bell Atlantic Corp. in 1991 but is only now gaining momentum. This August, Bell Atlantic finally finished installing the needed 5ESS switches and military-unique software called for under the contract.

The TEMPO ISDN switch software is a proprietary superset to the National ISDN 1 standard. One-third of the customized TEMPO ISDN capabilities, such as the automatic hold feature, are not expected to be generally available for another year or so.

With automatic hold, when users with a multiline phone are talking on one line and see the light flash, which indicates an incoming call, they can answer the second call by simply pushing the button for that line. At that point, the first call is automatically put on hold, according to Fred Winterling, a Bell Atlantic technician.

The Defense Department drew up its special list of requirements for TEMPO eight years ago, before there was a National ISDN 1 standard.

"We believed back in the 1980s that ISDN would be fully implemented by everyone by the time TEMPO was put in place," said Mike Newton, director of the Telecommunications Service-Washington, the Defense organization managing the TEMPO contract. "But it turns out we're still ahead of the times."

TEMPO also connects to wide-area military networks such as the worldwide Defense Switched Network, the Automated Voice Network, the Defense Commercial Telecommunications Network and the Defense Data network.

To date, 13,000 ISDN Basic Rate Interface handsets are now on desks in military offices, and 3,000 phones are purchased each month through the TEMPO contract, Newton said.

To hold down the cost of ISDN BRI service, many Defense Department organizations have elected to share the BRI line's two bearer channels between two users, Newton said. Each user gets a 64K bit/sec B channel, sharing the

signaling D channel.

And the Pentagon is scheduled to cut over its own 5ESS ISDN switch in July.

"This will probably be our most challenging switch cutover," Newton said. "Unlike the other switches, we will end up owning it — it won't be shared with the outside world."

The TEMPO cutover must be completed by

next October when Centrex contracts expire. However, the lengthy federal contracting process means the Defense Department will have to start thinking about the successor to the TEMPO contract in another year or so.

While the migration from Centrex to TEMPO has proceeded well, Newton said he hopes that the future will bring a more competitive marketplace.

Only AT&T and Bell Atlantic bid on TEMPO when the request for proposal went out in 1988.

"Next time around, we hope there will be more bidders," he said. □



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RATE & TARIFF MONITOR

by Eric Paulak

How much is one-stop shopping worth?

If you want a better deal than what MCI is offering on international rates, you should go to another carrier, right? But what if that other carrier — in this case,

BT North America, Inc. — is owned by MCI?

In many cases, BT North America is offering better rates than its new parent company.

That may not make sense, but that's what's

happening with the first BT North America filing — FCC #1 — since MCI took it over.

For virtual networks, both carriers' services are set up the same way: Prices vary depending on whether the transmission began and terminated over local dedicated access or switched access lines. Dedicated access-to-dedicated access transmissions (on-net) are the least expensive, switched-to-dedicated access or vice versa (on-net to off-net) are the next cheapest, and switched-to-switched (off-net) are the most expensive.

But that's where the similarities end.

BT North America also breaks down its

Concert Virtual Network pricing by the type of transmission — data or voice. MCI has just one price for both transmissions.

With BT North America, an on-net voice call to the U.K. costs 30 cents for the first 30 seconds and 1 cent for every second thereafter. A data transmission, on the other hand, costs 90 cents for the first 30 seconds and 3 cents for every second thereafter.

With MCI's Vnet service, you pay 58.93 cents for the first 18 seconds and 7.1 cents for every 6-second increment thereafter for a call to the U.K. Charges for data are the same.

How do the two compare? For a 10-minute voice call, BT North America charges \$6, and MCI charges \$7.48. And for a 20-minute voice call, MCI charges \$14.58, and BT charges \$12.

Data traffic, however, is another story. For a 10-minute, on-net data transmission, MCI still charges \$7.48, but BT North America charges \$18. And for a 20-minute data transmission, MCI's rate is \$15.29, while BT North America's is a whopping \$36.

So for data traffic, MCI is the obvious choice, but for voice traffic, BT North America offers the better deal. However, that may soon change.

Now the confusing part. MCI is also now offering Concert Virtual Network Service. The differences between the MCI and BT North America versions of Concert are twofold.

First, the prices. For voice calls, MCI charges 19.86 cents for the first 18 seconds and 6.62 cents for every 6-second increment thereafter. So, that same 10-minute call to the U.K. would cost \$6.62 with MCI, meaning BT North America offers the better deal at \$6.

The second difference is that MCI currently does not offer a data option although it plans to early next year. When it's available, it will cost about three times the cost of the voice service, just like BT North America.

If you're an MCI Vnet customer, you don't have to switch to Concert. But if you currently use MCI's International Vnet service for a lot of voice calls, your rates should decrease if you do make the switch. If you make a lot of virtual network data calls, however, you could see drastic increases if you switch.

Some people may consider the increases worth the convenience of only having to deal with one international carrier — or so the two carriers contend. But there are limitations to how much convenience you gain.

Both MCI's and BT North America's on-net Concert Virtual Network service is only available in Australia, Canada, France, Germany, the Netherlands, Sweden, the U.K. and the U.S., although more countries will be added.

For the rest of the world, you either have to make arrangements for dedicated access yourself or pay the higher on-net to off-net rates.

Even if your virtual net is within Concert's eight-country territory, with data calls priced at three times the rate of voice traffic, it may be time to look at another carrier if you're more concerned with savings than convenience.



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Circle Reader Service #29

❖ Paulak is associate publisher for the Center for Communications Management Information, a provider of rate and tariff information in Rockville, Md. He can be reached at (301) 816-8950, Ext. 327.

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Put dual-RISC processors in an Ethernet switch and a couple of things happen.

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checks every frame for errors so data is delivered right the first time, every time.

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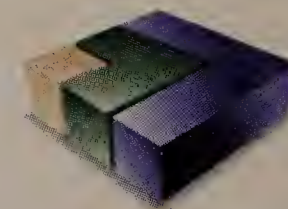
What's more, with TigerSwitch XE, you can group up to eight 10Base-T 10Mbps links to form a high speed path between TigerSwitches, or from the switch to your network servers.

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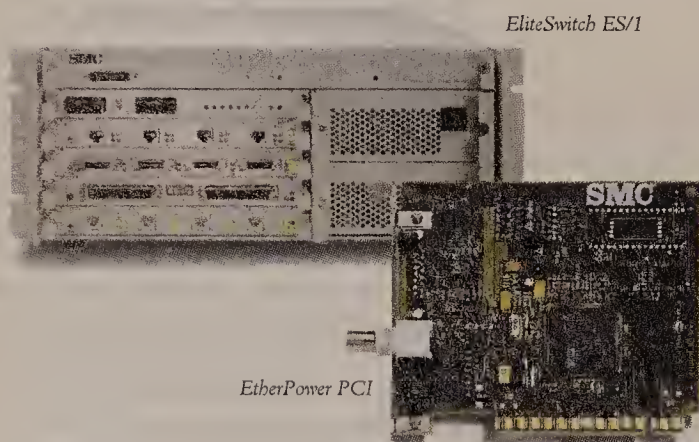
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The TigerSwitch XE is a part of SMC Unity, a framework of network solutions for LAN Access, Bandwidth Acceleration and Intranetworking.



SMC's complete networking solutions include LAN switches, LAN adapters, hubs and network management software.

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Circle Reader Service #41

CLIENT/SERVER APPLICATIONS

Distributed Databases, Messaging, Groupware, Imaging and Multimedia

ENTERPRISE COMPUTING

Documentum to upgrade document mgmt. software

BY TIM GREENE

Pleasanton, Calif.

Documentum, Inc. last week announced an upgraded version of its document management software that includes a feature that lets users assemble documents from components stored throughout an enterprise.

The Virtual Document Manager feature in Documentum Version 2.0 lets users build compound documents by integrating graphics, spreadsheets, reports and other data retrieved across TCP/IP-based LAN and WAN links. Existing documents can be used as templates for new ones.

Version 2.0 also expands the software's ability to set up and monitor complex workflows. It includes triggers that automatically notify appropriate network users of a document's progress.

Other new features include:

Documentum upgrade

Pulls together component parts of documents from across an enterprise.

Provides strict workflow monitoring, including triggers to notify key users about the progress of work.

Offers a screen painter that lets users create customized windows as they design new documents.

■ Customized in-boxes that can sort work by status, task, name and responsible party.

■ Out-boxes that can view work just forwarded and reroute items to other users.

■ The ability for users to leave notes on documents in progress.

Documentum targets pharmaceutical firms that prepare lengthy, complex submissions necessary to market new drugs.

The software also can be used in manufacturing to share files and drawings across departments during the development and production of products.

Darci O'Brien, an information manager at Black and Veatch, which uses Version 2.0 to prepare engineering specs for power plants, said Documentum replaces a slower and more chaotic method that relied on hard copies and data stored on diskettes.

Version 2.0 will be available immediately for Microsoft Corp. Windows and Apple Computer, Inc. Macintosh clients. It will be available for Motif on Unix in the first quarter of 1995.

The server software will be available initially for Sun Microsystems, Inc.'s Solaris and Hewlett-Packard Co.'s HP-UX platforms. In the first quarter of 1995, it will become available on IBM RISC System/6000s under AIX.

Version 2.0 comes with support for Oracle6 and Oracle7. In the first quarter of 1995, support for Sybase, Inc.'s SQL Server will be added.

Version 2.0, scheduled for release mid-month, includes an application program interface for linking other applications. The cost of Version 2.0 ranges from \$500 to \$1,500 per seat, depending on options, configuration and volume.

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Firms intro new database wares at DB/EXPO show

Informix leads the pack with its server upgrade.

BY BARB COLE

New York

Informix Software, Inc., Cognos, Inc. and Logic Works, Inc. are among the companies scheduled to launch new databases and development tools at the DB/EXPO '94 trade show this week.

Informix will roll out Informix On-Line Dynamic Server 7.1, an upgrade to its flagship database that has expanded parallel processing capabilities, beefed-up replication and new database administration tools. The database server, which can break up queries and run them across multiple processors, can now load data across multiple processors, as well. As a result, loading and replication are increased several-fold, depending on how many processors the computer has.

The new version has a feature called distributed database replication, allowing administrators to copy individual tables as opposed to just whole databases. This helps prevent replicating unwanted data because users can copy selected parts of the database. In addition, administrators may now repli-

cate data to unlimited sites, according to Dave Watson, marketing manager for servers and connectivity at Informix.

Informix also has added two new Windows-based database administration tools to Version 7.1. DB/Cockpit is used to monitor clients connected to the server as well as sys-

Debuting at DB/EXPO

Product	Pricing	Availability
Impromptu 3.0	\$495 for the user version; \$595 for the administrator version	1Q 1995
Informix On-Line Dynamic Server 7.1	\$5,625 for a five-user license	Now
ERwin/ERX 2.0	\$3,495	Now

GRAPHIC BY TERRI MITCHELL

tem resources. It also warns administrators if system parameters reach a preset threshold. Another Windows-based tool, OnPerf, tracks the performance of queries run on multiprocessing systems.

Available now, Version 7.1 runs on 11 symmetric multiprocessing (SMP) hardware platforms.

IMPROMPTU 3.0

Cognos will use DB/EXPO to announce Impromptu 3.0, a new version of its database query and reporting tool.

The new version lets administrators pre-determine whether queries should run on clients or servers. This can help reduce the load on the server and reduce network traffic. In addition, administrators may allow, warn or prevent queries that might bog down the server or network.

Impromptu 3.0 works with several databases, including Oracle Corp.'s Oracle7, Microsoft Corp.'s SQL Server and Sybase, Inc.'s SQL Server System 10.

DATABASE LOGIC

Logic Works, Inc. will roll out ERwin/ERX 2.0, a database modeling tool that may be used to reengineer legacy applications.

With ERwin/ERX, users import existing database "schemas," which are like blueprints that define the kind of information in the database and how that data can be accessed. ERwin/ERX generates new schemas for SQL databases based on those old blueprints.

Version 2.0 includes a macro language that allows developers to add core functionality to a database that was not part of the schema.

An Oracle version will ship next month, and Gupta Corp. SQLWindows and Microsoft Visual Basic versions are planned for the first quarter of 1995. ■

BRIEFS

Percussion Software, Inc. of Boston this week will announce three new versions of its **data integration tool** for linking Lotus Development Corp. Lotus Notes and back-end relational databases. The new versions of Notrix Composer will let Notes users exchange data with Sybase, Inc.'s SQL Server and Microsoft Corp.'s SQL Server implementations, and IBM's DB2 and Oracle Corp.'s Oracle7 databases. The software, which sits on a Notes OS/2 server, includes an event manager for scheduling data exchanges and a programming tool that provides simplified access to the Notes application program interface.

Pricing starts at \$4,995 per server. The Oracle version will be available in January; the others are out now.

Percussion: (617) 267-6700.

Symantec Corp. of Cupertino, Calif., last week announced a new version of its **Enterprise Developer application development tool kit**.

New in Version 2.0 is the ability to generate server-based database triggers, which let a developer partition an application between clients and

servers. Also new is a data migration tool for moving data and database structures, such as tables, between a variety of relational databases, as well as support for Visual Basic controls.

Pricing starts at \$795 per license, which includes support for XDB Systems, Inc., Powersoft Corp., Lotus Development Corp. and Microsoft Corp. databases. Team Enterprise Developer, starting at \$3,295 per license, adds support for Oracle Corp., Sybase, Inc. and Microsoft databases. Symantec: (800) 441-7234.

Software Emancipation Technology, Inc. of Lexington, Mass., last week released an enhanced version of its **team development software** for C and C++ applications. Version 3.0 of the company's ParaSet software gives developers the ability to see the impact across an application of changes made to one module through a graphical interface. Users can also propagate changes across modules stored in different locations.

The software works with a variety of Unix versions, including Solaris 2.X and HP-UX 9.X and 10.X. Pricing starts at \$35,000 for a five-seat license.

Software Emancipation: (617) 863-8900.

Entrusting public-key security to Northern

BY ADAM GAFFIN

Ottawa

Northern Telecom, Inc. is moving into the client/server world with software that provides security for distributed applications.

Northern's Entrust is a public-key security system that provides both encryption and digital signature capabilities, and relies on X.509 technology for storing public keys.

Via an application program interface, developers can quickly layer security functions onto such applications as workflow and groupware, as well as give users the ability to encrypt individual documents, said Brian O'Higgins, director of Northern's secure networks division.

Entrust provides the same type of public-key security built into Lotus Development Corp.'s Notes groupware package, although O'Higgins said Entrust goes a step further than the system in Notes by giving network administrators tools for managing the public keys. For example, the server can be set to automatically expire public keys and replace them with new keys.

Northern scored a coup recently when it announced that Microsoft Corp. would use its Entrust public-key software to provide security in its forthcoming Exchange client/server messaging line. Northern began developing Entrust last year.

See Northern, page 35

by Marc Myers

Visual Age could be all the rage

When you sit down to write a client/server application, your ability to succeed is unalterably linked to your ability to understand and maximize the potential of your software development tool set.

In the not-so-distant past, software design and implementation were relatively stable crafts in which you could gain expertise throughout the course of a career, building a knowledge base of experience and tool-specific information. Today, client/server developers typically learn many tools per year.

This is a result of all the tools now available with significantly different feature sets and pricing structures. Most large users today employ several different client/server tool sets simultaneously, requiring developers to be somewhat familiar with all of them to provide interdepartmental data sharing.

To avoid this kind of chaos, other corporations launch research projects to evaluate tools on the market and recommend a companywide standard. But this can be problematic: One large company I know of spent two years simply trying to define its client/server tools of choice.

So where should you start? How about in your own backyard?

The fact is most businesses are run today by legacy applications that have

been refined, patched, reworked and otherwise made thoroughly unreadable over the last 10 to 20 years.

Addressing this issue is what makes IBM's Visual Age application development software one of the most interesting and potentially dominating products to hit the street in recent years. It is the first complete client/server development environment that doesn't assume you are writing all your systems from scratch.

Visual Age provides the trendy features that are the current standard in client/server application development: drag-and-drop graphical components, automatic code generation, object orientation and interfaces to the major relational databases. But what sets Visual Age apart is its ability to be the focal point for the integration of client/server and legacy systems.

For example, Visual Age allows you to take advantage of existing CICS transactions by providing a list of the fields required by the transaction and allowing you to graphically connect the data-entry fields from your Visual Age front end to the mainframe transaction fields.

Even more impressive is Visual Age's "Wrappering" technology, which gives

you the ability to package critical portions of existing legacy code and run them unchanged from Visual Age. For example, if you have a rating engine for pricing insurance policies written in COBOL, you simply compile it as a Dynamic Link Library (DLL) and tell Visual Age the name of the DLL and the entry point. Then Visual Age will automatically parse the legacy code's Copylibs (mainframe-speak for the data structure definition area) and provide visual, drag-and-drop connectability between your graphical user interface and the legacy pricing engine.

There is only one downside to Visual Age: It's too good. IBM has made a product whose scope is so complete that it's hard to explain in just a few paragraphs. This will be IBM's biggest challenge.

It's like OS/2 in a way. Our company started using OS/2 in 1988, and its ability to multitask soon became a real productivity enhancer. Windows is a full seven years behind OS/2 in coming to market with a true multitasking operating system for the low-end desktop. But all that technical stuff does not really matter to the average software buyer; people buy what works and what they can understand. If IBM can make people understand the power of Visual Age, the company has the potential to define a new era in integrated client/server computing.



Myers is president of Client/Server Connection, Ltd., a Cambridge, Mass., firm specializing in client/server software solutions. He can be reached at (800) 622-1108, Ext. 522, or via CompuServe at 71332,1726. Myers' column alternates in this space with that of META Group's Mike Rothman.

Cisco hopes the 'Net will mean business

BY ADAM GAFFIN

San Jose, Calif.

Cisco Systems, Inc., whose equipment routes the bulk of packets over the Internet, now hopes it can use the network to better coordinate purchases with its suppliers.

In January, Cisco will begin with four suppliers an Internet-based electronic data interchange pilot that, if successful, will enable the firm to end existing contracts with EDI value-added net (VAN) providers, said Carl Redfield, vice president of manufacturing.

A key issue is whether Cisco and its suppliers will see the same level of reliability over the Internet as they now get from the VANs.

"We're really talking mission-critical transactions" that could ultimately total several hundred a week, he said, adding that Cisco and some partners have used EDI for more than a year now.

Cisco will use TCP/IP-based software from Premenos Corp. of Concord, Calif., to conduct Internet-based EDI transactions. The software, running on Hewlett-Packard Co. HP-UX servers at both ends of a trading partner network, incorporates public-key encryption technology from RSA Data Security, Inc.

SECURITY SELLS

The security technology was a major selling point for Cisco because the RSA technology provides both the security and authentication required to ensure safe transit of EDI messages.

With the RSA technology, Redfield said he is not concerned about the security of packets swapped with suppliers. But he still needs to determine the Internet's level of reliability as compared to that of a VAN.

If the reliability proves acceptable, then the Internet would become Cisco's preferred EDI network. Redfield said the network is potentially a better EDI channel in part because so many companies are now connected to it. And by eliminating an electronic middleman, Cisco could also save money and gain flexibility in adding new trading partners to its EDI transactions, he said. □



ACI US ships remote access database client

4D Remote lets PowerBook users read, update server data.

BY PEGGY WATT

Cupertino, Calif.

ACI US, Inc. has announced availability of 4D Remote, a tool to remotely access data in 4D Server Macintosh databases.

Users running the client portion of 4D Remote can directly log on to 4D Server from a PowerBook or even a low-level Macintosh over a standard phone line. They can access files just as if their system were local, said Russ White, ACI US market development engineer.

The server portion of 4D Remote provides such security features as callback and caller identification confirmation.

Administrators can limit remote users' access rights to read-only if need be, and access to administration functions through the database's usual security fea-

tures, which provide password protection at multiple levels. An administration utility at the server can be used to schedule access times, track call statistics and display activity logs of remote users.

"4D Remote lets any system become a client," White said. "You can use 4D Open [ACI's run-time database] and 4D Remote to synchronize remote information with the host database."

"Remote access is a good thing, but it is an absolute nightmare if you can't control it," said Ziya Oz, president of the consulting firm BitMagix, a division of New York-based American Security Designs, which designs security systems for financial institutions.

Oz has tested a configuration

involving a 20M-byte 4D Server database and about a dozen remote users. "One of the worst features of having remote mobile users is that you can lose control, because, by definition, they're accessing your server, your lifeline," Oz said.

SUFFICIENT SECURITY

4D Remote's security, combined with the multilevel security in 4D Server, is sufficient, he said. Oz liked the option of restricting certain levels of access to certain hours or days, such as when the administrator is present to monitor usage.

Remote users running the 4D Open run-time database can maintain a local subset of the server data and synchronize information through remote access, he noted.

4D Remote is licensed for one to four remote users for \$500 and for five to 20 remote users for \$1,000.

©ACI US: (408) 252-4444.

Northern

Continued from page 35

Entrust has clients for Macintosh, Windows, HP-UX and SunOS platforms. It can run atop any X.500-compliant database, including Northern's own Entrust/Server, which comes in versions for HP-UX, SunOS and Windows NT.

In a public-key network, each user has two sets of keys — a public key that anyone can employ to encrypt messages to the user and a private key that only the person has for unlocking those messages. The public keys are typically

stored on a server to which all users have access.

X.500 is a useful repository for the public keys because it is scalable — multiple servers can be spread around an enterprise — and because it lets net administrators manage multiple types of user data, such as logon files and public keys, in a common format.

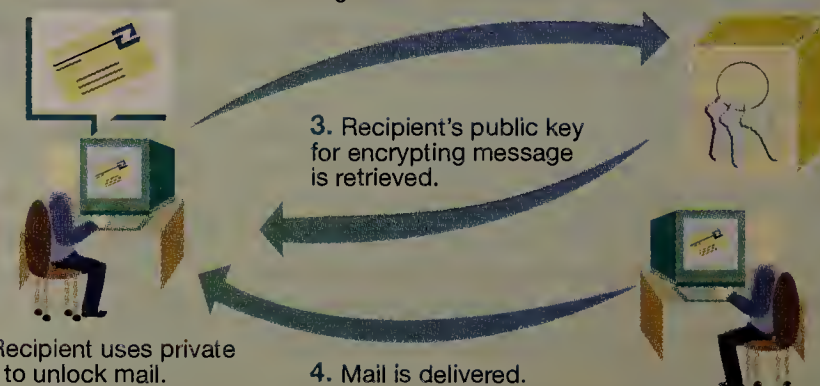
Glenn Gabriel Ben-Yosef, a senior analyst with The Yankee Group consultancy in Boston, said Entrust will prove critical to the success of Microsoft's Exchange and that it could prove a useful tool for other applications.

Pricing starts at \$159 per user.

©Northern: (800) 667-8437.

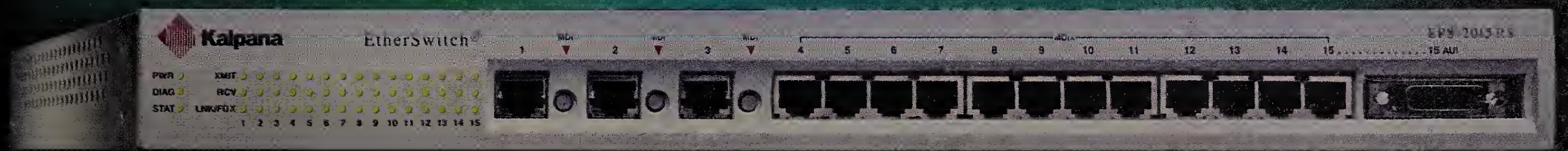
The keys to secure E-mail

1. User addresses E-mail message.
2. Client connects to server.



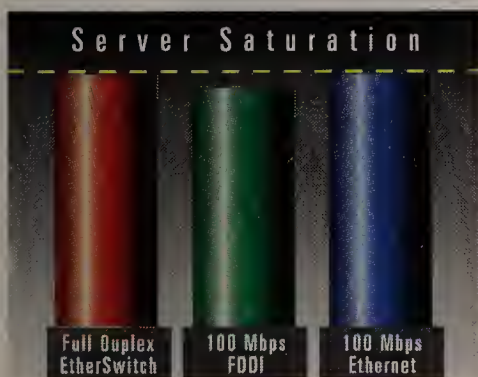
GRAPHIC BY TERRI MITCHELL

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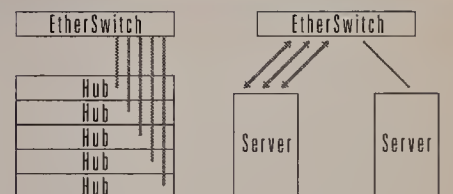
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*New operating system software;
new installation problems.*

Get ready to swap and swap and swap and...

...swap and swap
and swap...are we
having fun yet?

...swap and swap
and swap and...

*Lose something?
You won't find it at the
local hardware store.*

*Big enough is
never big enough.*

*Forget the Internet
Domain name?
Uh-oh, you know
what that means.*

*Don't forget to
install and debug
the Ethernet driver.*

*Oh. You'll have to
configure all the
addresses yourself.*

*If it doesn't fit,
you can make it fit.
But it'll cost you.*

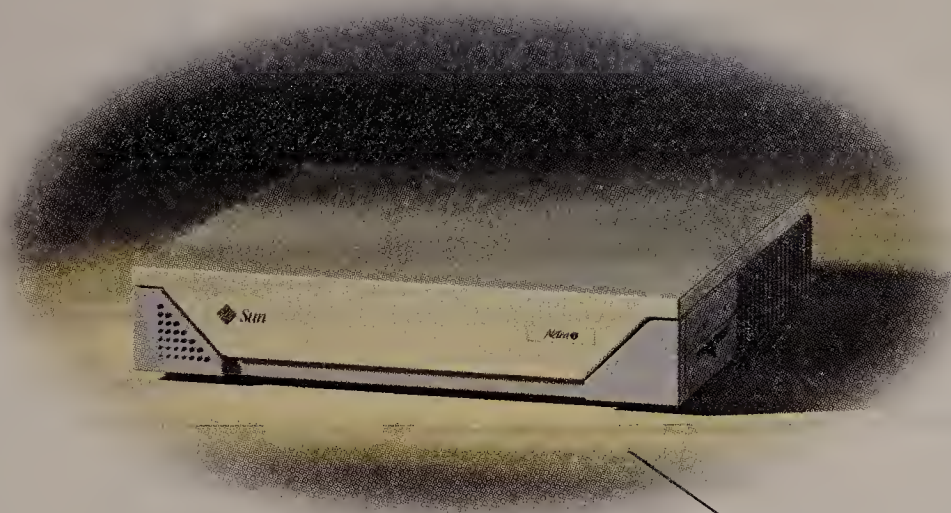
*Plug it in and
it works. Maybe.*

*If you think this is a headache,
wait until your users complain
about how slow it is.*

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Sun Microsystems Computer Company

The Network Is The Computer

EDITORIAL INSIGHTS

Not a mistake after all

When Novell bought WordPerfect earlier this year, I thought it was a big mistake. Why would a networking company want to get into the application business?

But I just spent a fruitful couple of days in chilly Utah listening to a barrage of presentations from representatives of the united company's various units. They have ambitious plans for a standard universal networking infrastructure.

Novell calls this concept "pervasive computing." It aims to provide this universal networking according to a model that has four layers: infrastructure, network services, access components and applications. These, in turn, are supported by various tools and APIs, including ones for network management.



The first applications to take advantage of Novell's network services and infrastructure will be the former WordPerfect applications as well as the others now bundled into its PerfectOffice suite and GroupWare products. These applications can serve as models for the rest of the industry for what can be accomplished by network integration. New features will include transparent access to network resources on demand from within applications and automatic customizable processing of directory objects. These new capabilities could be of great benefit to users and administrators.

If Novell gets buyers excited about its applications' new networking features, other vendors will want to jump on the bandwagon. If Novell publishes its APIs and gives incentives for third-party developers to use its software development kits to integrate their applications with NetWare Directory Services and NetWare Distributed Management Services, the firm ensures a robust market for its services and its underlying infrastructure. True, that may ultimately come at the expense of its applications, as new application developers go on to do them better.

But by then, the WordPerfect applications will have served their purpose. By pointing the way for the industry at large, they'll have succeeded in moving Novell's services into the next generation of networks, where the NOS as a bundled entity is less important than the individual services provided; where an application developer can write a front end that can converse with more than one back-end service; and where end users can mix and match not only applications, but network services.

At that point — three to five years down the road — Novell may want to spin off its application division, to alleviate the fears of small developers who hesitate to compete with the service vendor. Heck, why should a network service vendor be in the application business?

♦♦LEE SCHLESINGER

lschlesi@world.std.com

TELETOONS

FRANK AND TROISE



SPEAKING THE LANGUAGE

by Linda Musthaler

Kalpana deal positions Cisco as source for total solutions

Cisco Systems, Inc.'s announcement that it will be buying Kalpana, Inc. (NW, Oct. 31, page 1) represents another big acquisition that will further narrow the networking industry's playing field. In the short run, it may look like this "urge to merge" leaves users with fewer and fewer choices. However, I maintain that in the long run, the merger trend will produce fewer incompatibilities, stronger standards and better product integration.

Big-name mergers have been occurring so frequently this year that they've lost their shock value, except for those companies directly involved. I mean, imagine how IBM felt about the Cisco/Kalpana news. Rumors were rampant that IBM was interested in buying Kalpana, which could be just the reason why Cisco took the plunge. As early as this past August, talk on the street was that IBM had agreed to acquire Kalpana for \$150 million. Before the deal became official, however, Cisco slipped in there with an offer of \$207 million.

Cisco and IBM have long been rivals in the interconnectivity market. This acquisition just muddies the waters a little more, and I'm sure it makes IBM more than a bit nervous. IBM currently resells Kalpana's Ethernet switches and has been working for years to codevelop a token-ring switch with Kalpana, to be sold under IBM's logo. Suddenly, IBM's big competitor in the communications market, Cisco, comes along and snatches the big prize.

Now, Cisco and Kalpana insist that the merger won't change things between Kalpana and its OEM customers like Hewlett-Packard Co. and Bay Networks, Inc. In fact, Kalpana will be a wholly owned subsidiary of Cisco, rather than being swallowed alive, letting it do business freely with outsiders.

That probably doesn't allay IBM's fears, though. It's like your girlfriend suddenly becomes engaged to another man, and tells you that the engagement won't change anything about your own relationship. Would you believe her? Me neither. Publicly, however, IBM is stating commitment with Kalpana. Truthfully, IBM doesn't have much choice, unless it wants to delay bringing its own token-ring switch to the market.

The acquisition is certainly a good deal for Cisco. Here was a company with a little too much money in the bank, and to keep Wall Street investors happy, the company had to spend a few bucks. Buying Kalpana was a brilliant strategic move, as it gave Cisco instant market leadership in the Ethernet switching area, and it kept the Kalpana technology from falling into the hands of competitors. Not only IBM, but also suitors such as Cabletron Systems, Inc. could have come forward.

What's more, by acquiring Kalpana, Cisco gained an important distribution channel that it didn't have before. Cisco has historically focused on direct sales and sales through high-end, value-added resellers. Eschewing direct sales, Kalpana through the years has built a very nice sales channel through its distributors. This was highly prized by Cisco; sometimes it's easier for a company to buy a channel relationship than to develop one itself.

I've talked with folks who wonder why Cisco

would even be interested in Kalpana Ethernet switching products when just last year, Cisco acquired a similar line of products when it bought out Crescendo Communications, Inc. One analyst even speculated that the Crescendo deal isn't living up to its promise. Looking a little closer at the technology, however, we see that the Crescendo Catalyst product is aimed at the high-end workgroup market. Kalpana's products will be focused on improving performance at the desktop. As a result of these two acquisitions, Cisco has a very comprehensive range of switching and internetworking products.

What's more, rumors are strong that Kalpana is developing an Ethernet-to-ATM switching technology. If this is the case, then Cisco may have been more interested in the company's future products than in the current Kalpana product line.

On the Kalpana side of the deal, the officers at that company are delighted to be affiliated with Cisco — a company that has a recognized name, a good reputation and definite clout in the network industry. As long as Kalpana can continue to run somewhat independently of Cisco, the company should thrive.

So, the deal looks like a good one for the players. But what about for users?

I'm encouraged by the idea of a complete product line from one vendor, as long as we still have other options. (Monopolies don't sit well with me.) I firmly believe it is better to purchase a total solution from one vendor than to buy parts piecemeal from several vendors. Even the so-called strategic alliances among vendors leave gaping holes in the product lines.

One of my analyst friends, however, is concerned about the impact the merger will have on Kalpana's support for industry standards. He claims that Cisco is known for its proprietary solutions, and he fears that Kalpana may be pushed in that direction as well. I personally don't think that will happen, especially if Kalpana retains its autonomy, as both companies have indicated. The communications equipment industry is too incestuous to allow a current major player to withdraw into a proprietary corner.

If I do have one lament about the merger, it is that small vendors in the switching arena won't have much of a chance to compete against a powerhouse like Cisco. Many high-end products are developed by smaller players. Unfortunately, good marketing often overpowers good technology, leading to further culling of the industry. Moreover, start-ups will find it harder to break into the market.

But on the whole, I look for good things to come from this merger. Of course, it will take a year or so to get the product positioning just right and to develop the necessary network management software. But once that happens, I think Cisco will be well positioned to deliver a solution for almost any network communications need. Strong technology and strong financial resources should bring users a solid, well-integrated product line and strong network management capabilities.

♦♦Musthaler is vice president of research at Currid & Co., a Houston-based technology consulting firm. She can be reached at (713) 789-5995.

THE INTERNET

by Ed Krol

Delicate balance between mgmt., control is needed

Business people frequently cite the Internet's lack of management as one reason why it is not yet ready for real business applications. They usually point to the more centrally managed nets such as America Online (AOL) as being better models for the information superhighway. Granted, some management is necessary for ease and reliability of a network's service, but when management is eclipsed by control, as it sometimes is in AOL, the whole thing gets a bit distasteful.

Recently I was asked to make a guest appearance in the Wired auditorium on AOL and answer questions about the Internet. Of course in order to make this appearance, I needed to get on AOL. I did and entered a land of glitzy interfaces and well-managed resources. Almost everything I tried — information resources, help facilities and so forth — worked. The things that didn't work informed me that they were still being built. All in all, it was a very nice experience. Yet while I found many aspects of AOL interesting, I was also bothered by it.

TOO MUCH CONTROL

Internet resources certainly could use more management — no doubt about it. AOL has management, but with it comes control — in my opinion, too much control. I was hit by this when, on the afternoon of my appearance, my AOL client stopped working.

I was using the beta release of AOL's TCP/IP client because using IP to access other systems from my home is more reliable than using the internal modem in my Mac Duo. (Reliability is highly prized in public appearances.) I fired up the client, and when it contacted the service, it quit, sending me a message that said something like, "This version of the software has been superseded; get a new version."

This really annoyed me. How dare they tell me what software I had to run on my machine and when I had to upgrade!

In any event, I dutifully tried to FTP the new software from the AOL server. The problem was, every person who was in the same situation as I was in was trying to do the same thing, and I couldn't get into the server. I panicked but after about an hour, I managed to get connected and get the required software.

This incident never would have happened on the Internet — that's part of the Internet's allure, but it also presents a problem: Internet servers may offer additional services to people with the latest and greatest software, but people on old, clunky computers with old software can use the Internet as well. It is a rare day when a new standard on the Internet gets defined which obsoletes the installed base. The problem is, of course, that this means there is no standard for what the Internet looks like to everyone, which makes providing support very difficult.

On AOL, control applies not only to the software, but also to the resources themselves. Being on AOL reminded me of Malvinia Reynolds' song "Little Boxes," where "they are all made out of ticky tacky and all turn out the same." Granted, Wired on-line and a stock portfolio are not the same on the surface, but underneath they are. They are both traditional information resources provided by a new medium — they're not new information resources.

At a time when every large employer is sending anyone who is supervising employees to seminars about fostering diversity, we should be fostering diversity in electronic information as well.

The National Information Infrastructure's impact on culture will not be caused by allowing people to get the same old stuff via a new medium. It will be caused by enabling people to conveniently get at information that was previously so hard to get that it was considered unavailable. This will require lessening control over information, while providing enough management for users to find the information they seek.

♦♦ Krol is author of *The Whole Internet* (O'Reilly & Associates, Sebastopol, Calif., second edition, 1994) and assistant director for net information services at the University of Illinois at Urbana-Champaign. He can be reached at e-krol@uiuc.edu.

by John Doe

Ad leads to a nightmare on Cyber-Street

A recent article about cyber-censorship (Oct. 31, page 1) really hit close to home. I, too, had an experience in which I unwittingly incurred the displeasure of some cyber-psychos, and it nearly cost me my job.

I have known since 1985 that a public network is a viable, spontaneous medium for advertising. After many months of discussion and studies, I was finally able to convince my company's CEO to acquire an electronic mail address for our firm from a local bulletin board system that offered Usenet access. Then I prepared a one-screen advertisement for two products that we sell at the retail level. Approximately nine months ago, I posted this message, with several cross-postings, to the appropriate groups that I felt would benefit from these products.

Now, I had not indiscriminately cross-posted to any old group in the Usenet realm. Nevertheless, the response my simple upload received was totally hideous and uncalled for.

At first, my company was flamed via E-mail with the usual defamatory remarks about advertising on the 'Net (yet in those groups, there was nothing *but* advertisements). Then there were postings, and cross-postings, expressing such displeasure for the world to see. As if this wasn't bad enough, someone uploaded a message to most of the alt.sex groups that listed my company's two 800 numbers as phone sex lines.

ALL TIED UP

Guess what happened next? For weeks, our 800-number lines were tied up by individuals looking for phone sex. Our switchboard operators were horrified at what these callers were saying. (One operator quit.) When the problem was identified and became too intense, the calls were transferred to me. I was totally humiliated by this whole dirty predicament.

I ended up recommending that our 800 numbers be disconnected for at least six months to allow the illicit posting, as well as our original one, to expire and the notoriety to blow over. However, doing this would have required us to forfeit our number- and letter-specific 800-numbers, which we could not do. Meanwhile, my company had to pay for every single "I want sex" call we received via our 800 lines.

Though the calls have tapered off and the 800 numbers restored back to the main switchboard, a call will still come in, now and then, from someone looking for phone sex. I was going to complain to the on-line provider used by the miscreant who uploaded the sex ad but chose not to for two reasons. First, I felt that doing so would only exacerbate the condition (I just wanted this whole matter to die!). And second, I'm sure the prankster was able to cover his tracks, so I wasn't really sure if the ad had actually originated from that on-line provider in the first place. From what I know about this flame-war business, there are a million and one ways to fake the origin of an upload.

Advertising on the 'Net was probably the worst judgment call I had ever made in my 25-year data processing career. Give me regular advertising any day.

Those "net purists" and "net wizards" who managed to embarrass me and my company did a wonderful job and such creativity shouldn't go unnoticed. But I am not about to lock horns with some nerd who does nothing all day but sit behind the anonymity of a computer screen looking for suckers like me to harass. However, I would like to warn others about this.

♦♦ The author is a data processing and MIS manager for a small import/export manufacturing firm in the Northeast. His name has been withheld upon request.

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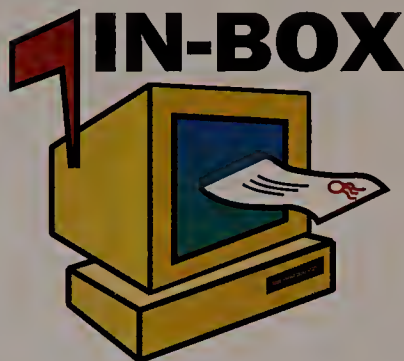
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Level the field

Thanks for your editorial "The FCC punts" (Nov. 7, page 40). From a business point of view, it sure would be nice to see the regional Bell holding companies playing on a level playing field.

Jack Unger

President

Wireless InfoNet

Felton, Calif.

DCE not a flop

Regarding David J. Buerger's "Back to Reality" column in which he says that the Distributed Computing Environment (DCE) "is an unmitigated flop" (Nov. 7, page 71):

I would like to add a couple of observations about DCE that I have formed over the past year or so. I have formed these views by not only following the technology's progress in the industry, but also by talking to a large number of customers.

I think DCE will clearly succeed for several reasons.

First, it has been endorsed by essentially every major systems vendor in the industry. DCE is, or soon will be, available on every hardware platform you can name.

Second, DCE is the underpinning of the distributed computing strategy for a number of major systems vendors, most notably IBM, Hewlett-Packard Co. and Digital Equipment Corp. These companies have dedicated lots of resources to this technology and have based their entire client/server strategy around it. Even if DCE was a bad technology, this sheer market volume share would by itself indicate that it would be at least an important technology, if not a de facto standard.

Third, all of the major database companies, including Oracle Corp., Informix Software, Inc. and Sybase, Inc., have committed to incor-

porating DCE into their products and have announced specific details about when that will happen. Some of these products will appear this calendar year, and some will appear early next year.

Fourth, DCE is gradually appearing as an internationally recognized standard. In particular, X/Open Company, Ltd. has standardized on the DCE application program interfaces and future DCE technology is expected to be submitted to X/Open for approval.

Fifth, many major users have publicly committed to DCE, and are actively pursuing development and deployment of DCE applications today.

Some of the companies that are actively developing applications using DCE, with the expectation that it will be deployed widely throughout their enterprises, are Charles Schwab & Company, Inc., Wells Fargo & Co., General Motors Corp., Mobil Oil Corp., Citi-Bank, N.A. and The Boeing Co.

Is DCE problem-free? Not by a long shot. It is generally hard to manage, and it's not easy to develop applications based on it. But products are appearing that attempt to solve both problems. These include DCE management tools from Digital, HP and The Santa Cruz Operation, Inc., as well as development tools from Digital, Gradient Technologies, Inc., HP, IBM

and Open Environment Corp.

At the absolute worst, I can understand why someone might say that the jury is still out on DCE. But an "unmitigated flop?" No way!

Sumner Blount

Senior manager

Digital

Littleton, Mass.

Cynicism offends

I was offended by the cynical portrayal of God in Howard Anderson's column "Networking and religion are a match made in heaven" (Oct. 31, page 47). My beliefs in God and knowledge of His character are far removed from Anderson's portrayal in his column. While Anderson was trying to make his points, he offended me and probably others who share my beliefs.

Please consider publishing an apology.

Tim Naylor

Independent network consultant

Chicago

Anderson's response: My view of God is of a being that has a sense of humor. But regardless, the intention of the column was to poke fun at networking trends, not to mock God, religion or religious people.

Help desk

Continued from page 2

ture and individual preference. You need to be aware of what corporate and personal preferences will affect the system. You also need to have a firm understanding of what you are trying to accomplish with the messaging system, the "business case," as it were. Finally, you need to consider the messaging system as an entity, almost a separate net. It looks, smells, acts and eats resources like one. Good luck.

Can you assist me in finding manufacturers that make audioconferencing equipment like bridges that have been approved for installation in Germany? Also, can you name any sources that may be able to provide this type of information?

James Bly, Buffalo Grove, Ill.

Carolyn Manjourides, president-elect of the International Teleconferencing Associa-

tion's (ITCA) Boston/Hartford Group says: PictureTel Corp.'s Munich office and Coherent Communications Systems Corp. sell audioconferencing equipment approved for installation in Germany. At PictureTel/Munich, contact Axel Feurer by phone at 011-498-99-921-1252 or by fax at 011-498-99-921-1255. At Coherent, contact Ed McDonald by phone at (617) 925-0842 or by fax at (617) 925-2399.

You can contact the ITCA for answers to audioconferencing or videoconferencing questions. The ITCA has chapters throughout the country. For more information, contact the ITCA by calling (617) 262-1929 or via fax at (617) 262-0907.

HELP DESK UPDATE

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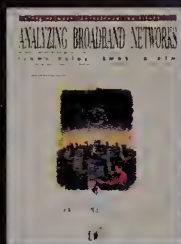
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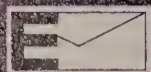
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Videoconferencing today: *Not a pretty picture*

BY KRISTIN MARKS

If you need to conduct a desktop videoconference today, your existing LAN cable and phone system will be stretched to the max. Call participants all need to be running the same application. Compression standards are implemented differently by every company. Even with a good application, users may become frustrated with the limits of the technology and just pick up the telephone to talk or instead board an airplane and show up in person.

We looked at products that offer both desktop videoconferencing and a collaborative work space — Alpha Systems Lab, Inc.'s MegaConference and InVision Systems Corp.'s InVision and VisionGraphics. While the InVision Systems offerings are far easier to deal with than Alpha Systems' MegaConference, none of the products have what users want from an ideal desktop videoconferencing system.

Products in this category may fall into at least three categories. Dial-up videoconferencing, such as MegaConference, runs over modems and telephone lines, and may be appropriate for remote or branch offices. LAN-based solutions, such as those from InVision Systems, may run over existing cable but can tax network bandwidth immensely.

Alternatively, a LAN-based product might run over

separate cabling installed alongside existing data LANs (see story, page 51).

Alpha Systems' MegaConference is a point-to-point application that runs on the company's MegaMotion board. The product also comes with a 28.8K bit/sec fax/modem board and a Lightning II video board.

The Lightning II VESA VGA board replaces whatever video board you have installed in your system. That means you can kiss your 64-bit Windows accelerator card and the money you spent on it good-bye. Alpha Sys-

and about the size of a cigarette box, but they don't provide a good image in low light.

MEGA-INSTALLATION

The MegaConference installation procedure could use a little streamlining. You need to install the three boards and the modem, if you're replacing your old one, and then run the setup program — four times. The first time is for the Windows setup from the DOS prompt to let Windows know you have a new Lightning II video

Two popular desktop videoconferencing applications demonstrate that the state of this art has a long way to go.

tems says it will address this issue in future releases.

The Lightning II board connects to the MegaMotion board through the VESA Feature connector. You plug your monitor cable into the MegaMotion port, not the Lightning board. Alpha Systems also sent us Toshiba Corp. CCD Desktop Cameras. These cameras are cute

card. Then you run the setup three times from inside Windows to install the MegaMotion drivers, utilities and conferencing application.

The MegaMotion's base I/O address of 27C0-27E3 is fixed and can't be changed — a potential problem for users with many other boards in their personal computers. The setup also establishes a RAM drive of at least 128K bytes for file storage.

The best thing about MegaConference is that you can run it over plain old telephone service (POTS). This will spare you the grief of finding someone at your Baby Bell who knows about ISDN or switched 56K bit/sec. On the other hand, the product is designed only for POTS, so its performance is limited by the speed of the modem link.

The MegaMotion video capture board uses Joint Photographic Experts Group (JPEG) compression techniques and overlays to force the video across standard phone lines. Unfortunately, you need a second phone line for voice communications. However, the second line is an expedient way around the voice/picture synchronization problem that plagues so many videoconferencing products.

Three programs are installed, and they need to be run in the appropriate order the first time you use the product. Digivideo, installed in its own Windows program group, adjusts the picture quality of your video input. It has a Troubleshoot button that leads you through the fine-tuning process. The MegaConference program group contains the utilities program, which is run next, that creates the MEGAMOT.INI file defining parameters for how MegaConference works. Finally, the user application can be run.

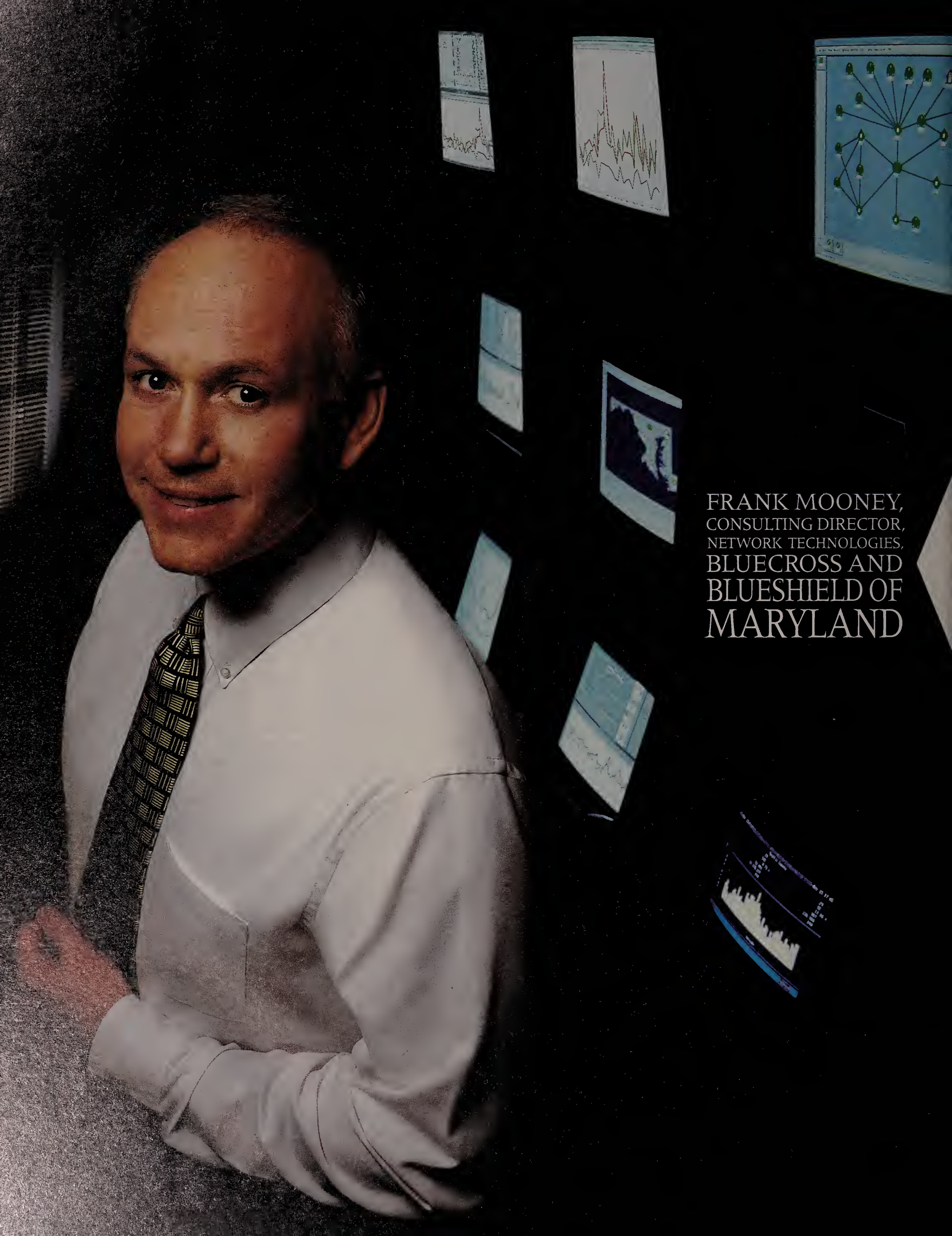
The application interface is simple, although it doesn't adhere strictly to the Windows programming guidelines. There is only one menu item — Help; all other functions are on a button bar at the top of the screen. Functions such as the phone book and chat dialog boxes appear as minimized icons.

Your own video image is always open so you can tell if your camera is aimed at your face or something else.

Continued on page 50

Result

Product	MegaConference	InVision and VisionGraphics
Works over a LAN	No	InVision only works over a LAN.
Works over POTS	Yes	Only VisionGraphics application (shared whiteboard) does.
Hardware included	MegaMotion video capture board, 28.8K bit/sec fax/modem board (U.S. market only), Lightning II VESA VGA card and Toshiba camera	No
Shared work space	Yes	Yes
Private work space	No	Yes
Number of participants	Point-to-point (two people)	Video is point-to-point only; whiteboard supports up to 10 participants.
Requires separate phone line for voice communications	Yes	No
Application sharing available	No	No
Clipboard	Only bitmaps	Yes, via OLE
Vendor	Alpha Systems Lab 2361 McGaw Ave. Irvine, Calif. 92714 (714) 252-0117	InVision 8500 Leesburg Pike, Suite 300 Vienna, Va. 22182 (703) 506-0094
Pricing	\$1,100 (includes required hardware)	\$595 (software only)



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HOW WE *did it*

We installed each product and used it to set up video links between stations. For Alpha Systems Lab, Inc.'s MegaConference, that meant telephone linkups; for InVision Systems Corp., we connected across the LAN. We used the products' electronic white-board components to transfer bitmap files, mark-up changes, clear changes, restore to original form and save files locally. With InVision, we transferred Microsoft Word 6.0 documents in and out of the white-board and marked them up as above. To test performance on a LAN with moderate traffic, we employed four Cycube workstations running batch files doing file access, application launches, and file copies and deletes.

We used the following systems in our evaluation:

All the workstations were on a single Novell NetWare 3.12 LAN.

Server configuration:

- Micronics 486/33 motherboard
- Adaptec 1742 SCSI host adapter
- Conner 1.3G-byte SCSI-II drive
- 16M bytes of memory
- SureCom EtherPerfect card

Conferencing workstations:

Dell Dimension XPS 486/66 MHz

- ISA bus and VL bus
- 16M bytes of memory
- SoundBlaster 16 with double-speed CD-ROM drive
- #9 GXE VL bus video card
- SMC Elite 16 Ethernet
- 450M-byte IDE hard disk
- Intel Smart Video Recorder
- Intel ProShare Personal Conferencing Camera

AST Advantage 486/25 MHz

- ISA bus
- 16M bytes of memory
- AST video (no accelerator or local bus)
- SMC Elite 16 Ethernet
- 200M-byte IDE hard disk
- SoundBlaster 16 with double-speed CD-ROM drive
- Intel Smart Video Recorder
- Toshiba CCD Desktop Camera

Magitronics 486/33

- Video 7 VGA/1024i
- 12M bytes of memory
- Adaptec 1522 SCSI host adapter and an IBM 400M-byte drive
- SMC Elite 16 Ethernet
- SoundBlaster 16 with double-speed CD-ROM drive
- Intel Smart Video Recorder
- Toshiba CCD Desktop Camera

ASL 486/SX

- 4M bytes of memory
- Video Lightning II VGA
- 400M-byte IDE drive
- MegaMotion Video Capture Board
- Toshiba CCD Desktop Camera

Continued from page 47

Phone book is a straight text listing of people's names, phone numbers and descriptive information. There is no way to place a picture of a person into the phone book, but you can list a graphics file name if you have a bitmap image of the person stored. You then need to start a viewer application to see the stored picture.

You can place a call by selecting someone from your phone book or by clicking on the Quick Call button. All you need is the recipient's phone number for quick calls. Unlike

most desktop videoconferencing products, the video picture can be expanded past quarter-screen size. Bigger doesn't necessarily mean better, though. The best you can hope for in frame rates with this product is 7 frame/sec.

In our tests, frame rates were closer to 1 to 3 frame/sec — about what you'd expect for 28.8K bit/sec. By contrast, full motion video is 30 frame/sec, so when videoconferencing over modem lines, you really feel like you're looking at a series of still shots.

You can control what the remote call partic-

ipant sees in terms of video quality, size and contrast. There is no visual clue to the remote user that you may be changing his display until the person's picture suddenly fills his whole screen.

At these frame rates, you're not going to get much benefit from this product from the video alone. You need a good collaborative work space — but the MegaConference work space isn't that good.

The biggest limitation is that only bitmap files can be displayed in the work space. If you



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have a text document you want to work on, you have to save it as a graphic bitmap before you can paste it into the work space. This means you can't make text edits to the body of a document.

You can mark it up with different colored markers, save the results as a bitmap file and print it out for reference when you go back to actually implement the discussed changes, but this is not good enough for most users. They could accomplish the

Systems' MegaConference. InVision has positioned itself as an interface to functions handled by other components. You must assemble the hardware components on your own, which you may see as either positive or negative. InVision is compatible with any video capture board supported by Microsoft Corp.'s Video for Windows.

InVision Systems bundles InVision for videoconferencing and VisionGraphics for desktop conferencing into the same box.

ferencing product, VisionGraphics, over LANs or 9.6K bit/sec or higher modems.

InVision's installation was painless. We used Intel Corp. Smart Video Recorder boards for video capture, the same Toshiba cameras that came with the Alpha Systems product as well as an Intel ProShare camera, and Microcom, Inc. DeskPorte modems. The installation procedure generates a registration form with the serial numbers already filled in and ready for faxing to the company.

Don't try to run this product without local bus video and an accelerator card. It just can't handle it. We ran a conference between a Dell Computer Corp. PC with local bus and accelerator card, and an AST Research, Inc. PC with a super VGA and Industry Standard Architecture bus. Frame rates were about 1 frame every 3 seconds on the AST. Drawing the screen without the extra horsepower for that task leaves you twiddling your thumbs and waiting to see if the other person smiled at your joke.

The interface is extremely clean and simple. All calls are made through the Address Book. The Address Book looks like a three-ring binder, and in it, you can store snapshots of Mel Gibson next to his name. To make a call, just double-click on the picture. If you don't have a snapshot, the picture frame next to the window says "Picture not available."

Snapshots are easy to take. Anytime video is running, you can click on the 35mm camera button on the button bar and a dialog box comes up that looks like a roll of film. Each snapshot you take is displayed in a frame of this roll. You can cut and paste from the film roll to the Address Book or save the snapshot as a bitmap file (.BMP). Just like a real roll of film, 36 snapshots can be stored on this roll.

Users access audio and video controls through a button bar, and you can adjust the video frame rate. The frame rate you control is actually how fast the computer at the other end of the link sends video.

An alternative for multipoint videoconferencing

Bandwidth blues got you down? If the thought of putting one more packet on your overburdened network cable gives you the chills, consider installing a separate video network. Datapoint Corp. (yes, the ARCnet people) have a scalable line of videoconferencing products that run on their own cable. The really good news is that you get studio-quality video — no jerky images or out-of-synch audio. You get multipoint, full-screen, full-motion, 30 frame/sec video to the desktop for any local conference. ISDN and switched 56K bit/sec wide-area connections can be established even with non-Datapoint coder/decoders that adhere to the H.320 standard.

Installing a Datapoint video network is not for the faint of heart. For a campus environment, referred to as the Local Video Network, you need a separate coaxial (RG-59 or RG-11) or unshielded twisted-pair cable plant.

In addition to a separate cable plant, you need Datapoint's MINX Cluster Server, which acts as a private branch exchange or hub for the video network. Adapter cards for various cable connection types are installed in Cluster Servers, which can also be daisy-chained to extend the number of desktops connected to the network.

Desktops, however, aren't necessarily personal computers. Datapoint does have a Windows-based application called WINMINX that is extremely easy to learn and use. You need to add a video capture board, such as a Video Blaster from Creative Labs, Inc., to your PC to connect your camera and monitor to the external Networked Video System (NVS) 100, which then handles your connection to the video network. The NVS 100 is platform-independent and can be connected to Sun Microsystems, Inc. or Apple Computer, Inc. Macintosh workstations, as well.

If you have completely computer-phobic users who don't want a PC on their desktop, Datapoint has the MINX 2002 workstation. It has a built-in camera, microphone and speaker. There's no keyboard or mouse, just a phone-style keypad for punching in phone numbers or speed-dial codes.

No matter how you connect to the video network, the features are the same. In addition to speed dialing, when you are receiving a video call, you get "video caller ID." This allows you to see who's calling you before you accept the phone call and before the caller knows you can see him.

Multipoint conferences are set up just like a conference voice call. You connect to the first person, put him on hold, connect to the next person and then click on the conference button.

Datapoint has assembled all the necessary accessories, including some that look like they came off the starship Enterprise, such as the Polycom, Inc. SoundStation for full-duplex, echo-canceled audio. Other components available from Datapoint include document cameras, the Video Blaster board, Sony Corp. cameras and monitors, and tabletop microphones.

The quality of the picture will knock your socks off; you don't miss a single raised eyebrow or snicker.

Datapoint has announced the PCNVS video network adapter card for Industry Standard Architecture bus and VESA Local bus PCs. This would eliminate the need for the NVS 100 box on your desk, but you would still need the separate cable plant connected to the Cluster Server.

To reach the company, write to Datapoint Corp., 8400 Datapoint Drive, San Antonio, Texas 78229, or call (210) 593-7866.

Continued on page 54



Figure 1: MegaConference can dial numbers in its phone book, or users can place a quick call by just entering a phone number.

same task in a phone call with a partner who has a faxed copy of the document.

Another limitation is that there is no private work space area inside MegaConference. If you want to make notes to yourself, you have to use pencil and paper or switch to another application.

In our tests, we weren't able to sustain a call with the shared work space activated. This is a significant drawback that negates much of the product's value. An Alpha Systems official suggested the problem was poor phone line quality, but we have not had line quality problems with other dial-up products.

Other areas that Alpha Systems needs to address are the quality of the manual, which provides a lot of references to incorrectly labeled figures, and technical support. When I called for help with a video display problem, I was never asked what kind of system I had, what kind of monitor I had or which version of the Lightning II driver I had installed. I was told by a representative that the company wasn't familiar with my modem or my camera, even though both components arrived in the Alpha Systems box. One technician decided my mouse was on COM1 and that was the root of my problems, even though I described my mouse as having a round connector that says "top" on it plugged into my motherboard — a PS/2-style mouse.

While MegaConference holds great promise for those of us outside the reach — geographically or financially — of ISDN or switched 56K bit/sec, the product needs improvement.

VIDEOCONFERENCE VISION

InVision Systems' InVision has been shipping since July 1993 and looks positively grown-up in comparison to Alpha

InVision currently supports only point-to-point conferences, but the company says a multicast version is coming soon. VisionGraphics supports multicast already.

Even though the documentation says the product runs over modems, the videoconferencing product doesn't. You can only videoconference over LANs because InVision uses either TCP/IP or Novell, Inc.'s IPX/SPX for communications. You could use the Point-to-Point Protocol or the

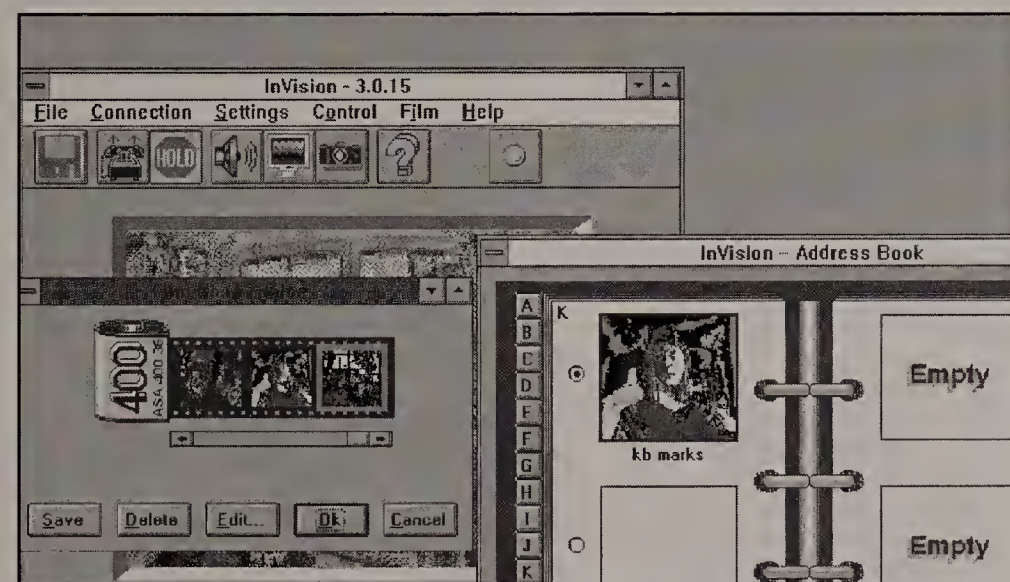


Figure 2: InVision can capture snapshots from live video. And images can be pasted into the product's Address Book.

Serial Line Internet Protocol (SLIP) if you want to use InVision over serial lines, but company officials claim that limits screen refreshes to one every 3 seconds or so.

If you route this network traffic over your WAN, then you can videoconference on the same WAN. But you can't directly dial out of your modem — yet. By the time you read this, InVision Systems plans to be beta-testing a version with modem capabilities. You can run InVision's desktop con-

Sending 1 or 2 frame/sec eats about 64K bit/sec of bandwidth; 3 to 5 frame/sec doubles the hit to 128K bit/sec. If you have the temerity to transmit at the default rate of 20 frame/sec, you'll eat about 512K bit/sec of bandwidth. In our tests on an idle LAN, this was acceptable performance, showing smooth movement and no color trails when our hands streaked across the screen. As soon as we added some other traffic to the

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The new AS/400 Advanced Series from

Continued from page 51

network, however, InVision did a better job of synchronizing the audio with the video if we stepped down to 10 frame/sec.

VisionGraphics, InVision Systems' collaborative whiteboard application, has a much more sophisticated interface than Alpha Systems' but still lacks some capabilities available in other packages, such as Intel's ProShare product (NW, July 11, page 45). The good news is that you don't need to be running the video application to use this application.

We would like to see more integration between the two components. For example, they use different address book metaphors and don't share the same address data. If you want to have a video call and work on a document with someone, you have to make two calls — one to establish the video link and another to establish the shared work space.

VisionGraphics supports private data areas and allows you to place prepared material into a Slide Tray, which is not part of the shared work space until you snap it into the white-

board. Once an image is in the whiteboard, you can mark it up, highlight areas, draw arrows and synchronize the participants' whiteboards to the same region of the screen, forcing everyone to pay attention to the idea you just had.

Although true application sharing isn't available, you can paste data to the whiteboard via Object Linking and Embedding. You can mark up the object on the whiteboard with the tools provided, but you can't change the original without double-clicking on it to get full access to the object's application for editing.

Changes made to the original are reflected in the shared object.

You may invite a guest to join your conference even if the person doesn't have his own copy of VisionGraphics by choosing the Create Guest Copy item from the menu, specifying the person's netw address, host machine name or phone number. This transfers just enough code to the guest's PC for the person to join in.

The InVision Systems' manuals are easy to read and provide a great deal of technical information without overwhelming or patronizing the reader. All the INI parameters as well as the changes the product makes to SYSTEM.INI are detailed. Technical support is courteous and competent. You have the feeling the technicians really use their own product.

MegaConference and InVision represent two points at the lower end of today's videoconferencing spectrum. Videoconferencing on larger systems provides better quality video but represents a significant investment in what are still proprietary systems. For now, I'll wait for my Ma and Pa Kettle telephone company and my public utilities commission to install and authorize ISDN service. ☐

The advertisement features a dark background with various networking-related terms in a light, sans-serif font, arranged in a grid-like pattern on the left side. These terms include: Network Management, Help Desk Pavilion, Mobile Computing, LAN/WAN, Interoperability, Enterprise Networking, Network Security, ATM, Hands-On Labs, Client/Server Computing, and Network Hand-on Guided Tour. In the center, the words "networking solutions" are written in a large, stylized font, with "networking" in red and "solutions" in green. Below this, the word "networks" is written in a large, red, serif font, followed by "expo boston '95" in a large, green, serif font. To the right of "solutions" is a large yellow equals sign. Above the main title, the "networks expo" logo is displayed, with "networks" in a lowercase, sans-serif font and "expo" in a lowercase, serif font, both in white. Below the logo, the text "Previously Known as NetWorld" is written in a small, green, sans-serif font. At the bottom of the graphic, the dates "February 14-16, 1995" and the location "Hynes Convention Center" are written in a red, sans-serif font. Below the main title, there is a block of text in a white, sans-serif font that reads: "You don't have to go out of your way to find cutting-edge solutions for today's most critical challenges in network computing. The solutions are here. At Networks Expo Boston. The network computing event that has no equal. Anywhere. Networks Expo Boston is a hands-on, roll-up-your-sleeves and make-it-work kind of show. Four days of non-stop solutions for virtually every networking need. With more than 300 national and regional exhibitors displaying and demonstrating their newest, most innovative products. And a Corporate Training Program of 12 tutorials and 57 seminars addressing issues ranging from network management to ATM and the Internet. Register for Networks Expo Boston today. Because nothing equals being there. For information, call 800.829.3976, ext. 330, 201.346.1400 or fax 201.346.1602, attention Jay Gorga." Below this text is the "BLENHEIM" logo, which consists of the word "BLENHEIM" in a bold, sans-serif font, with a small graphic of a building above the letter "H". To the right of the logo, the text "Networks Expo is produced and managed by Bruno Blenheim, Inc. Fort Lee Executive Park • One Executive Drive • Fort Lee, NJ 07024 800.829.3976 • 201.346.1400 • Fax 201.346.1602" is written in a small, white, sans-serif font. At the bottom of the graphic, there is a block of text in a white, sans-serif font that reads: "Networks Expo Dallas '94 • September 20-22 • Dallas Convention Center Networks Expo San Francisco '95 • May 2-4 • Moscone Convention Center". At the very bottom, there is a small block of text in a white, sans-serif font that reads: "Networks Expo™ is a service mark of Bruno Blenheim, Inc. NetWorld® is a registered trademark of Novell, Inc., which was exclusively licensed to Bruno Blenheim, Inc. and was used by Bruno Blenheim, Inc. as the name of its network computing trade show. That show is now called Networks Expo™."



The alliance is a cooperative of users, consultants, educators and integrators that applies its technical and business skills to analyze and compare strategic network products. A list of alliance partners can be found on page 41.

Kristin Marks is a consultant who specializes in multimedia and network management at Networks Are Our Lives, Inc., a consultancy in Red Hook, N.Y. She can be reached via CompuServe at 74002,2411.

No standards? No problem

Two distinct markets are mixed up with each other today — desktop conferencing and desktop videoconferencing.

Desktop conferencing is multiple users sharing the same virtual work space. Desktop conferencing strives to mimic a meeting where three or more people all contribute to an idea that they illustrate on a whiteboard. Many products actually use the whiteboard metaphor.

Desktop videoconferencing includes video and, occasionally, voice on the same line. The video is intended to be a head and shoulders shot of a person talking.

Desktop videoconferencing is a free-for-all right now. The lack of standards for these products makes any purchase decision a risky one.

We expect that by 1997, there will be standards and interoperability in the desktop videoconferencing market, meaning products from different vendors will work together.



Feature

Database king eyes new domains

With a solid DBMS in place, Oracle targets nascent markets but must shore up weaknesses in interoperability and development tools.

BY BARB COLE

The undisputed king of Unix database products, Oracle Corp., is taking steps to expand its kingdom by launching campaigns to conquer high-growth markets, such as multimedia and groupware, while broadening the scope of its gateway, development tools and vertical applications offerings.

Oracle is well positioned to make significant inroads in its quest; its core database product has been rejuvenated with the release of Oracle7, the fruit of a painful redesign of buggy Oracle6. The company has plenty of cash on hand to fend off rivals and finance its expeditions. And it's flooding the market with a bevy of new tools to ensure revenue streams from newly tapped sources such as telecommunications carriers and entertainment industries.

But Oracle doesn't hold all the keys to the kingdom and will need to take some deliberate steps to guarantee continued success. The pressure to improve its tool offerings, for example, was recently turned up significantly when rival Sybase, Inc. agreed to merge with Powersoft Corp., makers of the wildly popular PowerBuilder development tool. (Oracle's own attempt to acquire an application development tool company failed last August

when acquisition talks between Gupta Corp. and Oracle broke down.)

The Sybase/Powersoft union presents an attractive option for customers who want to deal with a single vendor for client/server database software and is a threat to Oracle, industry watchers say. While PowerBuilder works with several databases, including Oracle's, analysts say the Sybase/Powersoft merger puts Oracle in a position where it now must get serious about its tools strategy and soon.

Another soft spot is the perception that the company's products are not as open as some rivals' offerings. Oracle will need to foster greater interoperability between its products and others' to get a stranglehold on the market.

To win the business of users downsizing mainframe databases to Unix, Oracle is touting a broader suite of mainframe gateway products and a recently revamped line of front-end development tools

dubbed Cooperative Development Environment (CDE) 2.

At the client/server end of the computing spectrum, the Redwood Shores, Calif.-based firm intends to keep customers hooked on its Oracle7 database with an array of vertical applications and tools. A case in point is Oracle Documents, a groupware offering slated to ship in the

first quarter of next year, that will be able to link to Lotus Development Corp.'s ever popular Notes.

With databases fast becoming commodity items, "Oracle will be well-poised to distinguish itself based on its vertical market applications and offerings like Documents," says John Daly, senior analyst at Summit Strategies, Inc., a market research firm in Boston.

The company is also on the prowl in nontraditional markets, namely multimedia and object technology. Oracle has already inked deals with a number of major telephone companies to furbish products such as its new Oracle Media Server database and Oracle Media Objects development tools that will be used to build and manage multimedia applications. While these applications initially will be used to deliver video and shopping services to homes via boxes perched on televisions, Oracle's multimedia technology will eventually be used to link companies together, analysts say.

Oracle seems destined for continued success in the database market while also emerging as one of the leaders in the multimedia arena. The company recently finished a stellar financial quarter with revenues up 40% to \$556 million and net income up 64% to \$61 million. Analysts project that Oracle annual revenues will top \$2 billion this year.

"They have a very broad product line, including servers, CASE tools, development tools and the required server gateways," says Patricia Seybold Group, Inc. analyst Judy Davis. She and others credit the company

Continued on page 58

What a ride!

1977 Oracle is founded by Ellison.

1979 The company delivers its first product, the Oracle relational database.

1983 Oracle is the first database to run on PCs, minicomputers and mainframes.

1991 Despite revenue of \$1 billion, Oracle loses \$12 million. Heavy research and development expenses, mismanagement and an undeveloped consulting service division are blamed for the setback.

1992 Company releases Oracle7, an overhaul of its flagship database.

1993 Lane, a former Booz, Allen, Hamilton consultant, joins Oracle to lead its worldwide operations.

New products, including CDE, spur sales and profits, nearly doubling them to \$61 million.

1994 Oracle announces Oracle Media Server, which manages audio, video and text data.

Following an aborted plan to buy Gupta, Oracle buys the Rdb database line from Digital for about \$100 million.

Annual revenues hit \$2 billion.



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When you have 167,000 patients to care for, an unreliable network can leave you in critical condition. That's why the Georgia region of Kaiser Permanente, one of the country's largest HMOs, chose an innovative system to internetwork its outpatient facilities. It's 3Com's Boundary Routing system architecture.

With 3Com's Boundary Routing technology in place, personnel at Kaiser Permanente's outlying medical facilities in Georgia now have access to their nationwide network, and important patient information.

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Continued from page 55

with having a sound strategy for downsizing mainframe databases and reengineering legacy applications.

ORACLE CORNERSTONE

Key to the company's success is its Oracle7 database, now viewed as a stable product that incorporates several leading-edge database technologies, such as replication and support for parallel processing computers.

Following a glitch-ridden Oracle6, the long-awaited Oracle7 debuted in 1992 and helped the company recover from a shaky period in 1991 when, despite revenues of more than \$1.5 billion, the company lost

about \$12 million, due primarily to rising research and development costs and mismanagement (see graphic, page 55).

Equally key to Oracle's recovery was the entrance of Ray Lane, a former Booz, Allen, Hamilton consultant who took over as director of Oracle's worldwide operations in 1992. Lane is credited with turning Oracle around, largely by broadening its product line and replacing aggressive, dump-and-run Oracle sales staff with a sizable consulting division. Oracle has since regained financial strength and has enough cash on hand — about \$500 million — to finance its foray into multimedia and object technologies.

But while products such as Oracle Media Server will be important down the road, for the immediate future it is the company's ability to compete in the downsizing market that will have the most immediate impact on the corporate bottom line, analysts say. Once again, company officials look to their champion database to spearhead that attack.

Oracle7's ability to run on both symmetric multiprocessing (SMP) and massively parallel processing (MPP) computers is crucial in the database downsizing arena. However, there remain a few skeletons in the Oracle closet — namely openness and interoperability — that need to be laid to rest if the firm is to capture a major portion of the downsizing market.

THE CHALLENGES

"Oracle has been extremely successful, but I don't think people perceive it as an open software company. Sybase looks more open," Davis says. Sybase's 1993 acquisition of Micro Decisionware, Inc. (MDI), a company that built gateways to mainframe databases, gives Sybase a significant lead over Oracle in the area of interoperability, she says. Sybase now offers a line of gateways that gives its database customers access to a plethora of data sources, including key mainframe databases such as DB2 and IMS.

To address this challenge, Oracle is teaming up with middleware vendor Information Builders, Inc. to develop Oracle gateways to access legacy data such as DB2, IMS, VSAM and Rdb, which Oracle bought from Digital Equipment Corp. last month.

Gary Bloom, vice president of mainframe and integration technologies at Oracle, says the company is developing additional middleware products to roll out during the next year that will let end users access both legacy data and Oracle SQL without knowing the location of that data. The technology will also let users move parts of legacy systems, such as meta data, off the host machine and onto Oracle databases where it can be more easily queried by users.

"They've started to address the

openness issue, and that is something that was missing a few years ago," says Jon Rowe, director of advanced systems development at Providence Journal Co. in Rhode Island.

Another weakness for Oracle is the lack of tools for managing its databases across networks, an increasingly sore spot for users beginning to distribute databases throughout the enterprise. In response to user cries, Bloom says Oracle is beefing up the tools — such as its graphical network manager utility — that let administrators manage the databases and gateway links. In addition, Oracle is expected in the first quarter of next year to deliver Simple Network Management Protocol Management Information Bases (MIB) so Oracle databases may be managed via SNMP-based management systems.

THE COMPETITION

In the Unix database market, Oracle is unequaled. With more than 12,000 employees and annual revenues of more than \$2 billion, it is three times the size of its biggest competitor, Sybase.

Sybase also has enjoyed financial growth and profitability — its revenues were up more than 60% last quarter. But the firm has come under fire in the past year from analysts who question whether its server architecture can support enterprise-level applications.

"It appears that Sybase is taking its turn in the hot seat," says Curt Monash, president of Monash Information Services, a market analysis firm in New York. Industry analysts say Sybase's database architecture doesn't support parallel processing as well as Oracle's. The company is

It's been a busy year

Product	Availability	Comments	Pricing
Oracle Office	November 1993	This E-mail and calendaring software package has scheduling capabilities and runs on Windows and Macintosh clients.	\$200 per user
Oracle Workgroup Server	March 1994	A desktop database server for departmental computing that runs on Windows NT, OS/2 and Novell's NetWare.	\$995 for 2 users; \$2,995 for 10 users
Oracle7 Version 7.1	June 1994	An upgrade of the company's flagship database management system, Version 7.1 includes a parallel query option that distributes queries over multiple processors.	\$5,440 for 8 users
Oracle Cooperative Applications Release 10.4	September 1994	A suite of more than 25 software modules for accounting, manufacturing, distribution, human resources and project management. New version runs on parallel processing computers and supports Oracle7 Version 7.1 databases.	\$10,000 to \$30,000 per module plus \$1,000 to \$5,000 per user
Oracle7 for Windows	4Q 1994	A single-user version targeted at developers that is designed to compete with other relatively low-cost Windows DBMSs.	Expected to cost about \$500
Oracle Media Server	December 1994	Designed to manage multimedia data and work with Oracle7, this database will let users incorporate multimedia applications into standard applications. Will include a natural language processing program to let users search databases with key words and phrases.	Not available
Cooperative Development Environment	1Q 1995	A suite of application development tools, CASE products, and query and reporting tools that will work with the Oracle7 database.	\$2,500 per module per developer and \$175 for each run-time version
Oracle Documents	1Q 1995	A client/server groupware package to manage text, SQL and multimedia data.	Not available
Oracle in Motion	1Q 1995	A suite of application development tools that will let mobile workers access existing databases.	Not available
Oracle Media Objects	Mid-1995	This development tool for building multimedia applications will work with the company's Media Server database.	Less than \$500

Oracle at a glance

Strengths

- Enjoys financial stability and solid management.
- Owns largest percentage of Unix database market.
- Its flagship database, Oracle7, supports replication and parallel processing and outsells competitive products by a 2-to-1 margin.
- Offers database servers that scale from small workgroups to the enterprise.
- Features the broadest product line among database companies and leads the competition in developing next-generation products for managing multimedia data.
- Enjoys strong alliances with independent software vendors, resulting in a plethora of third-party products that work with Oracle.

Weaknesses

- Lacks a strong front-end development tool and tools for simplifying administration of distributed Oracle databases.
- Vulnerable to competitor Sybase, particularly in the areas of middleware and gateway products to mainframe databases.
- Perceived as being closed and falling short of providing interoperability with other databases.

Oracle users' wish list

✓ *There's a real shortage of good monitoring tools for Oracle. We need software that will show us how much system memory is taken up by a certain process.*

Mike Fisher, database manager, Medical Interinsurance Exchange, Lawrenceville, N.J.

✓ *As the product [Oracle7] gets increasingly complex, new customers want more hand-holding from Oracle after the product is installed. Oracle is willing to hold your hand, but they charge you for it. We also want to be notified when the software is upgraded. It's frustrating when you're working on a problem and you find out it's been fixed for seven weeks in an upgrade.*

Michael Abbey, database administrator, Office of the Auditor General, Ottawa

✓ *Interoperability between databases is a real problem. We decided that having one database was easier than trying to achieve interoperability between several, so we standardized on Oracle.*

Wayne Fowler, director of technology and network services, Toronto Stock Exchange

✓ *I used [Computer Associates International, Inc.'s] Ingres for a long time, and now I'm using Oracle. It seems that you have to hand-code everything in Oracle. [Oracle7] should be easier to set up and use.*

Scott Kelley, database administrator, U.S. Air Force, Edwards Air Force Base, Calif.

✓ *The things we used to gripe about — mostly bugs — seem to have been addressed.... This media server stuff is interesting, but Oracle needs to make it clear to us how this is going to work with existing applications and networks. Clearly, our existing networks won't handle it. I sometimes think Larry [Ellison] is in 1998 with the media technology.*

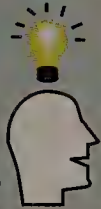
William Sortino, associate director for databases, Shands Hospital, Gainesville, Fla.

also more than a year late on delivering its Build Momentum front-end tool that is sorely needed to round out its product line.

Informix Software, Inc. attempts to challenge Oracle with its On-Line database that includes highly regarded parallel processing support. Informix, however has traditionally sold its database through value-added resellers. While Informix has beefed up its sales force and to go after the high-end Unix database market, analysts say the company's name isn't yet on the lips of corporate downsizers and poses no real threat to Oracle.

Two competitors, however, could give Oracle cause for pause. Computer Associates International, Inc., which acquired database provider ASK Group, Inc. last April, could capture a sizable chunk of the downsizing audience since it has access to corporate main-frame accounts. Similarly, IBM could invade Oracle's turf if customers endorse DB2/2 and DB2 for AIX as the best choices for downsized applications.

Ellison reportedly was spurred to start Oracle after reading an IBM research paper about relational databases.



But threats from traditional database rivals pale in comparison to the looming presence of the Redmond, Wash.-based giant, Microsoft Corp. With Microsoft entering the fray in the next quarter with a souped-up version of SQL Server for NT, a database price war is imminent. Further, Oracle and Microsoft will go toe-to-toe in several other areas such as groupware and media databases, say analysts.

GROWTH MODE
Oracle, however, is not sitting idle as Microsoft and its other competitors maneuver. The company recently revamped CPE2, its suite of computer-aided software engineering and front-end development tools.

The first release of CDE was criticized by users who complained it was difficult to use and that several modules didn't support Windows. The latest version is much improved, with support for cutting edge development technology and links to transaction processing monitors.

"CDE is a big part of our overall strategy because it provides information workers with easy access to database information," says Dennis Moore, director of CDE product marketing at Oracle.

Further, such tools provide an additional source of revenue — Oracle sold about \$300 million worth of front-end tools last year — and a way for Oracle to distinguish itself from the competition. The firm also offers an ever-expanding line of more than 25 accounting, manufacturing and human resources client/server applications, dubbed Oracle Cooperative Applications (see graphic, page 58). These vertical applica-

tions, which require an Oracle7 database, appeal to firms wishing to avoid the development cost of client/server applications.

In the next-generation arena, Oracle hopes to realize a return on its investment in media technology when it releases Oracle Media Server next month. Designed to manage multimedia data, this database will let users incorporate multimedia applications into standard applications. The company also recently announced Oracle in Motion, software that lets mobile users access Oracle databases via wireless data services.

CROWNING GLORY

The grandest technology plans will once again, center on the company's mainstay, Oracle7. Although not expected to be available for two years, the next major release, dubbed Oracle8, will include object-oriented capabilities.

Object technology will give users the flexibility of developing applications based on objects, which can be much more efficient than recoding every application. Oracle CEO Lawrence Ellison says that Oracle8 will encompass both relational and object-oriented capabilities, and that users will have the option

of exploiting either technology.

For now, Oracle's priorities are to stay on the cutting edge of database server technology, continue to broaden its line of client/server development tools and applications, and improve the interoperability of its product.

Meeting these goals will ensure Oracle a sizable portion of the lucrative downsizing market and will result in a strong revenue stream with which Oracle can finance its investments in media technologies, thereby establishing itself as a dominant vendor of multimedia databases and tools. ■

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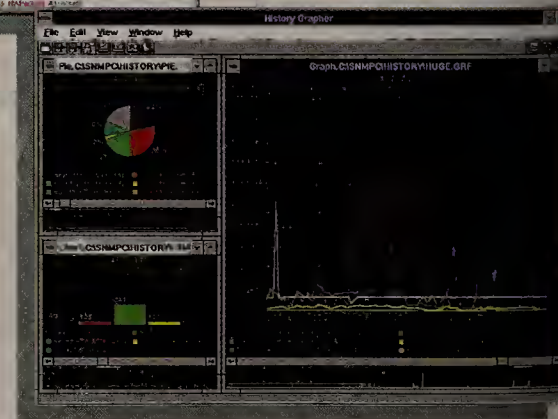
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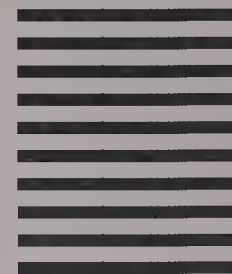
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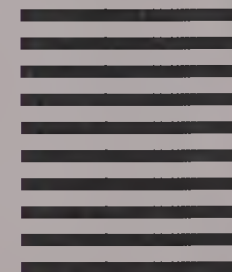
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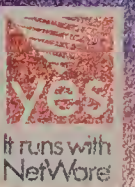
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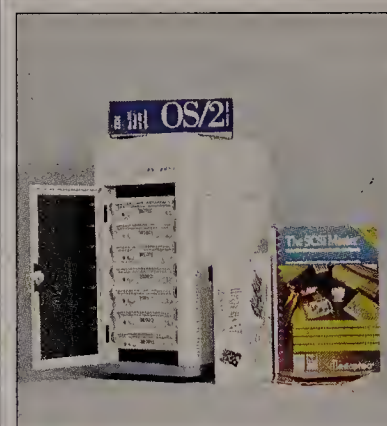
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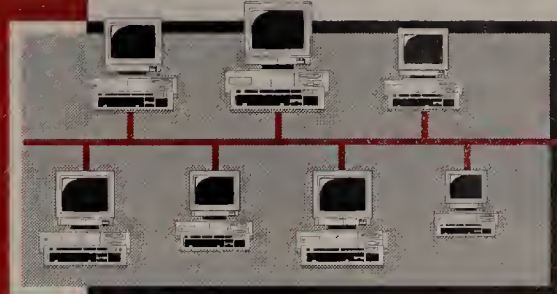
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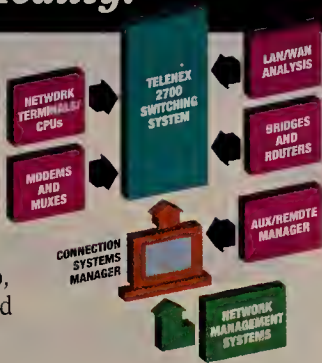
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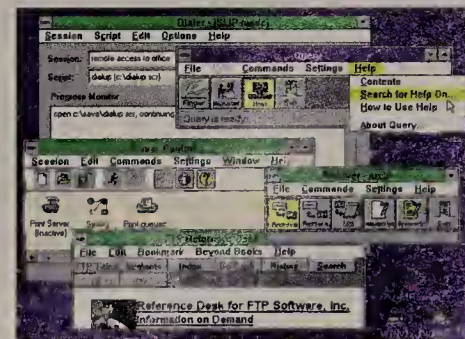
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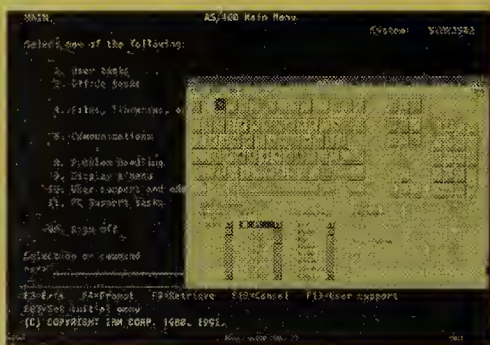
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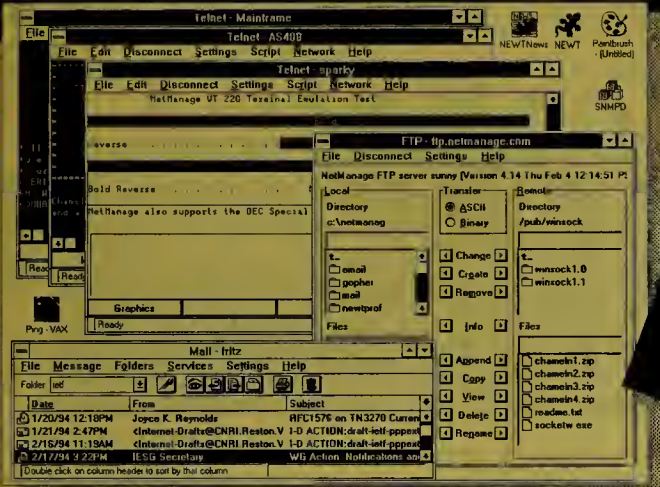
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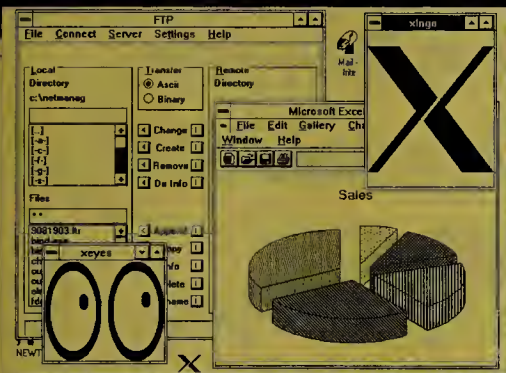
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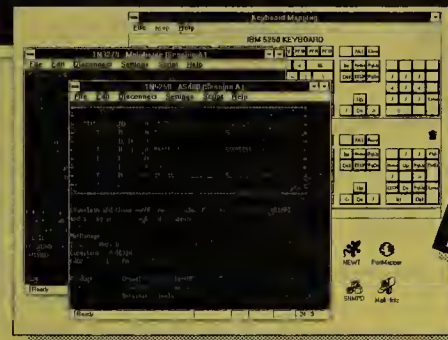
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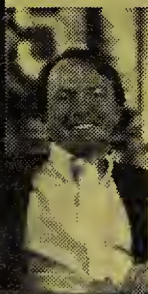
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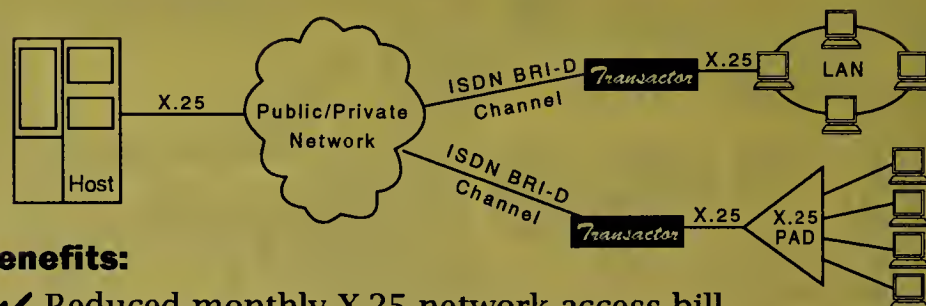
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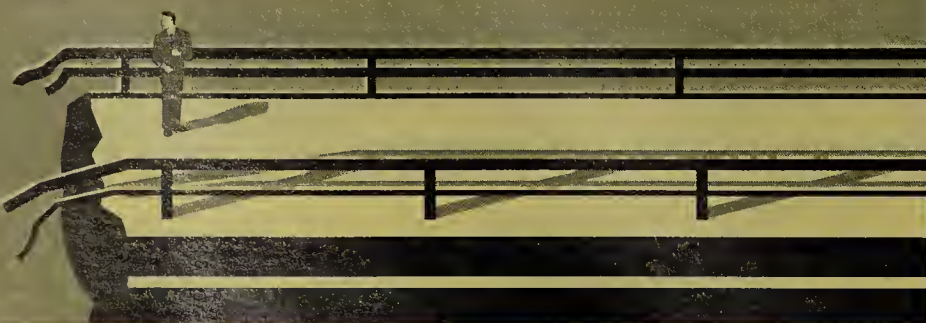


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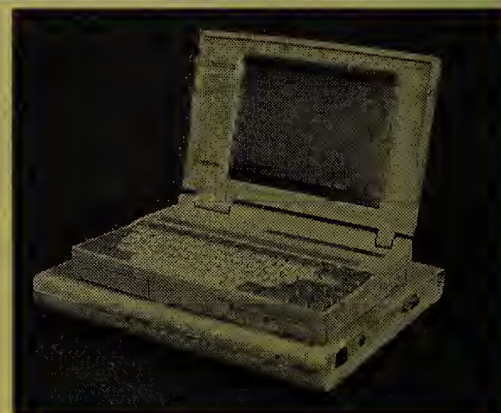
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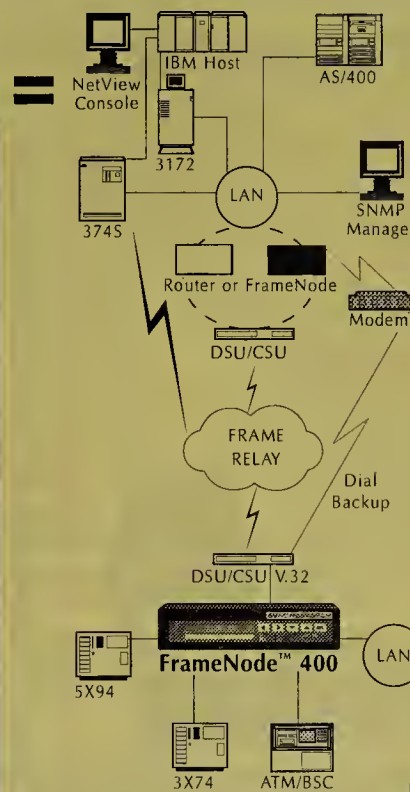
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Spectrum

Continued from page 1

companies have formed WirelessCo, L.P. In addition, NYNEX Corp., Bell Atlantic Corp., US WEST, Inc. and the Pacific Telesis Group spin-off AirTouch Communications have formed PCS Primeco, L.P.

Microwave users losing their spectrum will be allowed to migrate to new frequencies. These guidelines, issued more than two years ago by the FCC, which at that time was chaired by Al Sikes, determined that microwave and the new PCS could not coexist in the 2-GHz band, so microwave users would have to go.

The commission, now stewarded by Chairman Reed Hundt, is considering its own spectrum auctioning plans for the future. It wants to auction off spectrum for new services in shared bands used today by devices such as wireless LANs and handheld computers — all operating on an unlicensed basis under the so-called Part 15 rules.

Medical, industrial and scientific equipment, as well as microwave ovens and amateur radio, also use the Part 15 bands. The continued operation of all this equipment is now in question.

The FCC is proposing to auction off 15 MHz in the 2.4-GHz Part 15 band, prohibiting use of unlicensed devices. Plans are also on the table to auction off 16 MHz in another Part 15 band — 902 MHz to 928 MHz — to the automated vehicle tracking service providers, such as AirTouch.

Users of unlicensed devices will not be compensated for their loss. Nor will new unlicensed bands be made available to them.

The FCC has stated it may consider letting the Part 15 equipment continue to operate along with a licensed service in the bands.

But the Part 15 auction plans ignore the advice of the FCC's own Office of Engineering, which last August vehemently opposed selling off the Part 15 bands.

That report, sent to the Department of Commerce, said millions of Part 15 devices are in use, and "it is unlikely that a licensed service would be able to share this band with these devices."

"Coexistence with a service provider and Part 15 devices is difficult, if not impossible," said Steve Sharkey, an FCC engineer. "A commercial provider will have the right to shut them down, and the commission would probably be the one to enforce that."

Nonetheless, the FCC wants to sell Part 15 to raise money and figures people will end up paying for services they now get for free.

Wireless LAN vendors, including Windata Corp., Symbol Technologies, Inc. and Zircom Corp., are alarmed about the FCC's plan, which not only imperils existing equipment, but also shoots a hole in the 802.11 wireless LAN standard now under development.

"Ten years ago, the FCC encouraged us to develop equipment for these bands," said Lou Piazza, Windata's president, who noted that Europe and Japan have also set up a 2.4-

GHz unlicensed band. "The FCC's actions are inconsistent."

The recommendation to auction off the 2.4-GHz Part 15 originated with the Commerce Department's National Telecommunications and Information Administration (NTIA), which manages the government spectrum (the FCC manages the private-sector spectrum).

Under the Omnibus Reconciliation Act of 1993, Congress ordered the NTIA to turn over 200 MHz of government spectrum to the private sector — 50 MHz immediately and another 150 MHz to be identified at a later date for slower transition.

An NTIA source who requested anonymity said the Part 15 band was an easy choice for the first 50-MHz transfer. "The Part 15 users have zero rights," he noted.

However, the 200-MHz mandate from Congress will mean pain for government users in the future.

In February, the NTIA will hand eviction notices to government microwave users in the 1.7-GHz bands so the NTIA can hand that spectrum over to the FCC for auction, too.

That decision will impact the department of Transportation and Agriculture, the Coast Guard and the Federal Aviation Administration, among others. "Under federal law, these agencies are not allowed to accept compensation from the private sector," the NTIA source said. "We're carrying a millstone around our necks." □

Comments?

See "How to reach us" on the back page.

Signs of concern

Congress appears to be questioning the repercussions of the legislation it passed last year ordering the transfer of 200 MHz of government spectrum to the private sector.

"The 200-MHz legislation was written to force the government to become more efficient in its use of spectrum," said David Leach, professional staff member of the House Energy and Commerce Committee who helped draft the bill, which was sponsored by Rep. John Dingell (D-Mich.). "It wasn't written to hurt the Part 15 industry."

The Federal Communications Commission's upcoming authorization bill, which just passed the House and must now win approval from the Senate, counsels the FCC to protect the Part 15 industry when it faces competing demands for new allocations from service providers.

"A major consideration in the commission's deliberations must be the current deployment of these devices around the country," the House legislation states.

Congress wants the commission to resolve the Part 15 question "in a manner that is acceptable to the millions of people who own and operate Part 15 devices," as well as to the service providers that are willing to spend millions to get Part 15 spectrum.

BY ELLEN MESSMER

Memorex

Continued from page 6

marketing for Memorex.

HSDP consists of software that resides as an application on both the 9432 and the MVS system. It uses a proprietary protocol to send LAN data back and forth between the gateway and the mainframe at speeds of up to 2M byte/sec.

According to Tuttle, this is at least double the performance of most LAN-to-mainframe gateways and is achieved by not forcing data to go through VTAM or a TCP/IP stack on the mainframe.

The HSDP protocol instead lets the 9432 communicate directly with the mainframe-based HSDP application. That application, in turn, can deposit data in a mainframe-attached storage facility and extract it from a host database.

Tuttle said HSDP should be of particular interest to those users wanting to back up data from LANs spread across the enterprise because it can transfer more than 7G byte/hour.

Current implementations can push through about 750M byte/hour, he said.

Tuttle said Memorex hopes to get other software and hardware vendors to implement the HSDP specification, which he said is available upon request at no charge.

FFT is an application that runs on top of HSDP. It supports bidirectional file transfers between Novell NetWare LANs and the mainframe. Tuttle said FFT is aimed at those Novell users who need to copy or store large databases on the mainframe or need to back up large NetWare servers.

All of the new software will be available in the first quarter of 1995. HSDP for MVS will sell for \$17,500, HSDP software for the 9432 Enterprise Gateway will be priced at \$4,995, and the FFT software for MVS will cost \$2,500, plus \$695 for the 9432 code.

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Cisco

Continued from page 1

Cisco and Waldbusser may also submit a request for comment to the Internet Engineering Task Force for this standard topology format.

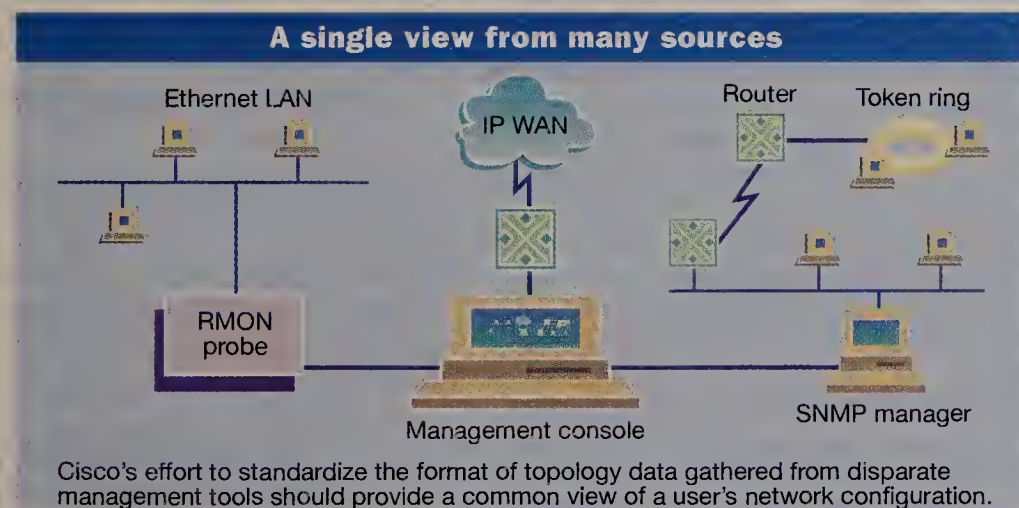
Cisco officials could not be reached for comment.

Currently, users have multiple views of the network based on the products they are using, be they Simple Network Management Protocol platforms, router manage-

uration information or send it as screen captures, they said.

"We don't have a unified view of most topology," said Chris Amley, network management architect at 3M Corp. in St. Paul, Minn. "It is a serious problem for us."

3M's IP network topology is represented by Hewlett-Packard Co.'s HP OpenView. But the same view OpenView provides for IP cannot be extended to other routed protocols nor to media access control layer protocols, such as Spanning Tree, Amley said. Physical layer views of the 3M network are also formatted differently, he added.



ment applications such as CiscoWorks, physical infrastructure tools such as ISICAD, Inc.'s Command system, or Remote Monitoring (RMON) probes and monitors.

But there is no easy way to consolidate these views into a single format and export them via electronic mail or floppy disk to other network managers or to service and support vendors, the sources said. Network managers either have to manually fax config-

Analysts said the problem is not exclusive to topology data.

"This is a big problem that's wasting a lot of people's time because everybody has not only topology data, but also event data and TRAP information in different formats," said Jill Huntington-Lee, principal analyst at Brandywine Network Associates in Cinnaminson, N.J. "If [Cisco] could do this, maybe other people would start looking at

this idea and expand it" to event and historical data, she added.

"Putting an RFC behind it will carry a lot more weight" than if Cisco attempted to define the format by itself, she added.

The downside to the Cisco effort, according to Huntington-Lee, is that standards do not satisfy everyone. Vendors could determine that an ASCII topology format is insufficient for representing their products and, therefore, add extensions to the standard or ignore it altogether.

Cisco is attempting to solicit input from other industry players, namely Remedy Corp., Peregrine Systems, Inc., Ki Networks, Inc. and the Management Integration Consortium (MIC), according to the sources. Cisco, they said, views its effort as complementary to the work of the MIC, which is trying to find a standard method for storing and accessing management data from a data repository.

Cisco's effort is "similar to what the MIC is all about," said Jim Herman, vice president of Northeast Consulting Resources, Inc. in Boston. "It's a reaction to the fact that there are all these different platforms, and the application providers just can't do anything useful because [the platforms] are all so different."

Waldbusser finished a draft white paper last week on the standard topology format and possible SNMP-based alternative solutions. He declined a request by *Network World* to review the document last week.

Cisco and Waldbusser plan to make the white paper public this month.

Adding the standard formatting capability to existing management tools would require little, if any, alteration to those tools, the sources said. □

NetWare 4.1

Continued from page 1

employ NDS and 3.X binderies in the same network, he said. "NetWare 4.X is ready for prime time and is ready for all sizes of businesses."

Users were confused when Novell first pitched NetWare 4.0 in 1993 as NetWare for the enterprise, a dramatic step up from NetWare 3.X, which Novell said would be retained as a departmental product.

Then new Chief Executive Officer Robert Frankenberg promised a SuperNOS that combines the virtues of UnixWare and NetWare — but not for two years.



DUBIEL

Last July, Novell shipped NetWare 4.02 to alleviate some concerns about 4.0. But at the same time, the company touted features to come in 4.1, watering down its message and slowing sales of 4.02.

Donahoo acknowledged that users were slow to adopt NetWare 4.X, in part because of Novell's mixed messages and still-developing technology. So Novell has retrenched, posi-

Advantages of NetWare 4.X over 3.X

- ✓ Includes NetWare Directory Services.
- ✓ Offers easier administration, installation and remote management.
- ✓ Provides migration path to SuperNOS.
- ✓ Will have access to AT&T NetWare Connect Services and the Internet.
- ✓ Provides better compression.
- ✓ Uses less memory and disk space.
- ✓ Will soon cost the same as 3.X.
- ✓ Adds NLSP to cut WAN traffic dramatically.
- ✓ Includes NetSynch to synchronize binderies and NDS when running simultaneously.

tioning NetWare 4.X not as a departure, but simply an easy upgrade from 3.X.

Novell will stop developing the core 3.X operating system in favor of 4.X, Donahoo said. It will, however, sell 3.X as long as there is a market, provide 3.X technical support after 4.1 is released and port new 4.X utilities to 3.X so it does not abandon existing users. Novell will not discontinue sales of 3.X until total 3.X sales drop to almost nothing, Donahoo said.

The company will also make 4.X more attractive by dropping a 25% premium, pricing it at the same level as 3.X, and by offering more flexible license packages.

Users might not be hearing mixed messages anymore, but they still have mixed feelings about NetWare 4.1.

The product got such a bad rap for being difficult to install, configure and manage that large installations will wait for it to develop a solid track record before they buy it, said Glen Holloway, manager of LAN services for Regency Systems Solutions, the information systems division of Hyatt Corp. Hyatt also runs an older version of Gupta Technologies, Inc.'s database, which does not support NetWare 4.X, raising the issue of compatibility.

"Moving to 4.X would affect not just Novell; it would affect all the ancillary applications on that platform," Holloway said.

Despite its bad rap, NetWare 4.X is much easier to migrate to than most people think, said John Dubiel, manager of planning and technology for Boston Edison Co. He has tested 4.1 extensively and is preparing to roll it into his 3.X network.

"The difficulty has nothing to do with NDS," he said. "It has everything to do with not having standards across your organization" because it is tough to integrate departmental networks that use different naming schemes into a single directory.

Also ready to roll NetWare 4.1 into a mixed NetWare network is William Fox, premise systems integration manager for American Airlines, Inc. in Fort Worth, Texas.

"It's long awaited and long overdue," Fox said. "This is the 4.X platform for the masses."

SCOPING OUT THE COMPETITION

But some users and resellers still doubt that NetWare 4.1 is all it's cracked up to be, including David Greenberg, president of EMed Systems Corp. in Maitland, Fla., a developer of medical software.

His 1,000-workstation, Windows NT-based network handles patient scheduling, medical records and financial software.

"NetWare is great for file and print services, but we needed a network operating system and server platform that integrates file and print services with applications services," Greenberg said.

Indeed, while Novell dithered with incre-

mental improvements in 4.X., the competition was moving into accounts such as EMed.

Microsoft Corp. released Windows NT 3.5, which analysts said is its first ready-for-prime-time NOS.

IBM also released LAN Server 4.0, whose enhanced graphics and ease of installation could make it a threat to NetWare, said Robert Sakakeeny, director of research for Boston-based consulting firm Aberdeen Group, Inc.

Both Microsoft and IBM offer free migration aids for NetWare 2.X and 3.X customers, and Microsoft offers NetWare users a discount if they switch from NetWare 3.X to Windows NT. But Novell is countering with its own migration products (see story, page 1).

Microsoft is the bigger threat because it offers both applications and operating environments, said Jerry Sergott, president of JSi Consulting, a NetWare value-added reseller (VAR) in Oak Lawn, Ill.

Banyan Systems, Inc. will also remain a competitor, especially in mixed networks and in the enterprise NOS market that has been its strength and Novell's goal, analysts said.

"An enterprise is not just a network operating system," said Mike Wixon, manager of technical services at Banyan. "It's Unix boxes and maybe [Microsoft's Windows] NT Advanced Server, and maybe VINES. The main thing is enabling the enterprise. Novell is in the business of just supporting NetWare."

A mixed bag

"I don't want to spend time looking at a product that is still evolving. Every time they make a change, I've got to roll it out to 100 locations."

Glen Holloway, manager of LAN services, Regency Systems Solutions

"NetWare 4.1 breaks the paralysis of technical services planning. Before, if you wanted to change your installation, you had to break it down and rebuild. We customers are licking our chops."

William Fox, American Airlines

"[Windows NT] is not a true enterprisewide network operating system. It doesn't have the performance level of either NetWare 3.X or 4.X, but it is getting closer."

Roger Hunt, president, Polar Systems, a Novell VAR and Microsoft Solution Partner

"Novell's product is strong, but they've got a strategy of convergence that's two years off going against a competitor [Microsoft] who's already converged, with Windows NT."

Rob Enderle, analyst, Dataquest

Banyan

Continued from page 1

reconsider now that Novell has apparently addressed that concern by including NetWare Directory Service (NDS) in NetWare 4.X and making it easy for users to convert.

"This is what everybody's been waiting for," said Robert Sakakeeny, director of research at consultancy Aberdeen Group, Inc. in Boston.

Users of VINES and pre-4.X versions of NetWare have been interested in taking advantage of Novell's X.500-based NDS but have hesitated because the migration was difficult, he said.

"If this is as almost automatic as [Novell said], then it's time to move," Sakakeeny said. NetWare 4.X "is really worthwhile now," he added.

MIGRATION STRATEGY

The VINES version of Migrate.EXE, which is different from the version that comes standard with NetWare 4.1, will automatically convert VINES files and StreetTalk directories to NetWare 4.1 and NDS formats, said Jim Greene, product-line manager for NetWare server products at Novell.

It will also convert directory information in Banyan's Enterprise Network Services (ENS) to NDS. ENS is a version of StreetTalk that runs on top of competing network operating systems, including NetWare and IBM's LAN Server.

The utility converts both user names and related information, such as object-oriented attachments. X.500 directories, such as StreetTalk and NDS, allow administrators to build links to detailed information about users, such as human resources files, to directory listings without adding that information directly to the listing.

StreetTalk organizes users into three hierarchical categories: enterprise, department or user group, and single user or device. Migrate.EXE will convert that hierarchy intact directly into NDS, Novell sources said.

Migrate.EXE converts all files and directory information except for logon scripts, which differ too much in VINES and NetWare to be converted effectively, Novell sources said.

The utility will accurately transfer DOS file attributes and trustee rights, but it will not transfer higher level VINES file attributes, such as an automatic compress function.

It will also not convert electronic mail files. Users that need to convert stored E-mail would have to employ a third-party product with a conversion utility supporting both StreetTalk and Novell's Message Handling Service (MHS).

TOUGH NUT TO CRACK

Novell's Greene acknowledged that it will be difficult for Novell to erode much of Banyan's 7% NOS market share with the new utility, but Novell hopes to convince at least some big Banyan shops to convert.

But Novell probably won't even get that, said Mike Wixon, manager of technical services at Banyan. Novell has long had tools to help users switch to NetWare, but Banyan customers with networks that include operating systems other than NetWare have rarely taken the bait, he said.

"Conversion tools are nice, but the issue is not the tools, it's the services," Wixon said.

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NETWORK WORLD

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Back to Reality

Novell chases Lotus' tail; learning how to give dictation.

BY DAVID J. BUEGER

Ever wonder why so many deals are being struck between vendors in the computer and networking industry?

The technology might be new, but the answer was provided a half-century ago by Damon Runyon, who said, "The race may not be to the swift nor the victory to the strong, but that's how you bet."

In other words, life is a crapshoot.

Novell, Inc.'s partnership with Collabra Software, Inc., announced last week, is such an example. Collabra's Share conferencing software will be added to Novell's GroupWise messaging system. GroupWise is the 50th name for a product formerly known as WordPerfect Office. Aha.

Percentage of Fortune 1,000 companies that use network applications in the following areas:

Databases	91%
E-mail	89%
Calendaring	72%
Workgroup applications	56%
Document management	44%
Forms processing/routing	41%

Why conferencing? I'm not sure. According to a recent poll of MIS managers by Gallup and *Computer Reseller News* (CRN), Fortune 1,000 companies use a variety of net applications (see graphic), but conferencing is not one of them.

After years of boring, face-to-face meetings, the last thing anyone wanted was to hold more meetings by computer.

A more likely explanation for Novell's move is Notes envy. Novell, along with most network applications vendors, is sick and tired of hearing "Lotus Notes" mentioned in the same breath as "groupware." Vendors are betting big they can attack Lotus' position on the groupware mountaintop.

The irony is that Notes may not be the nirvana it's known for. Michael Zisman, vice president of Lotus Development Corp.'s Communications Products Group, admitted: "We need to do a better job helping people do more with Notes than simple messaging and E-mail."

Lotus better get cracking before users' accountants crack down on them. According to another Gallup/CRN poll of MIS managers at companies with more than 500 employees, 11% said they save \$100,000 or more a year by using Notes; 12% said they save less than \$100,000 a year. About 18% said they save nothing, and 59% *don't know* how much they save.

It's anyone's guess how much revenue users create using Notes.

This fuzzy thinking has not dissuaded users from betting big on Notes. About 18% of the respondents plan to spend \$100,000 to half a million dollars on Notes during the next 12 months; 15% plan to spend over \$500,000.

Of course, 38% don't know how much they will spend. Go figure. I've always wanted to work for a company with an unlimited budget. Accounting is such a bore.

The long-term goal for network applications vendors is to get into your wallet

with messaging servers. The idea is simple: to have users install servers that control every conceivable data interaction between an organization's employees and customers. Not a big role — just God of the network will do.

Hewlett-Packard Co. with its OpenMail product is one of the few vendors shipping such a product. Lotus and Microsoft Corp. are late with their products but claim they will ship in 1995. Other vendors with pending offerings include IBM and AT&T's Global Information Solutions. Oh yes, and Novell promises that its newly announced Collaborative Message Server will ship by December 1995.

I'm sure you can't wait. A Version 1.0 product is so lovely — especially when your whole business depends on it.

So who wants to roll the dice?

Just the facts, ma'am

If Reed Hundt and the Federal Communications Commission get their way, millions of users of wireless LANs, wireless bar code readers and meter readers are about to get kicked off the air waves.

The culprit is big telecommunications companies about to pony up billions of dollars for licensing personal communications services (PCS). Wireless devices that use the 2.4-GHz Part 15 band will interfere with PCS.



Apparently, the government is so broke that it has to charge for invisible commodities to get cash. In the timeless words of Will Rogers, "I don't make jokes. I just watch the government and report the facts."

Back to future

Not all visions for the information superhighway are digital. VoxLink Corp., a small Atlanta-based firm

and a pioneer in text-to-speech translation, last week debuted a new service called Inteletext — fax and E-mail triggered by dictation. Customers buy a debit card and call an 800 number. But here's the switch: instead of speaking to a machine, you dictate the message to a live operator who transmits it for you.

Most of us yuppies have never dictated messages to a secretary. During the test call, I felt as nervous as a teenager asking a girl for his first date.

The operator was quite pleasant. Unfortunately, she couldn't spell. "Hi Bob" became "High Bob," "in lieu of" appeared as "in lue of," and "facsimile" was unpardonably typed as "faxsimile."

I like the idea, but for now, I'll stick with my computer. It corrects my spelling errors without an attitude.

♦ Bueger is an Atlanta-based industry consultant and contributing editor to *Network World*. He can be reached at (404) 495-7494 or dbueger@pipeline.com.

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CyberSpeak

Voices from the reader network

Network user groups could be a big help for your company. Why hasn't your firm become a member?

♦ "Before approaching an outside user group, we would rather consolidate internal resources, and we're doing that using [Lotus] Notes. We have a lot of in-house expertise, but it is not being propagated throughout the organization. If one person does belong to a user group, the rest of the organization isn't aware of it. We need to focus on who is going to be attending and how that information is propagated so [membership] is not at a local level but at a global level."

Frank Caratozzolo, senior information specialist for a major East

Coast pharmaceutical manufacturer

♦ "Even with the user groups' claims of saving time and money, my company solves all of its computing problems via a cc:Mail connection to the Internet. I have solved more difficulties from my desktop with the help of some expert users who are more than happy to respond any day of the week (from the Novell, Win3 and other lists) than I feel I could have through a membership to a user group. With results like these, a

membership to a user group just doesn't seem as cost-effective."

Mark Urness, computer engineer, E.H. Boeckh, New Berlin, Wis.

♦ "I've recently moved from the vendor to user world and have been looking for user groups to be a part of. If anything, these groups need to promote themselves better so one is aware of where to find them so one can participate."

Jess Piszczor, automation and development consultant, Banc One Services Corp., Columbus, Ohio

**NextWeek
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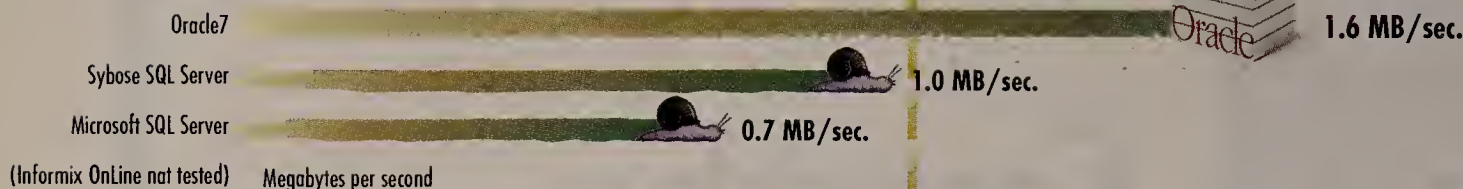


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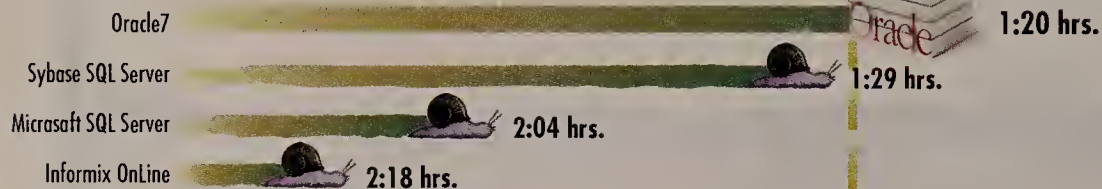
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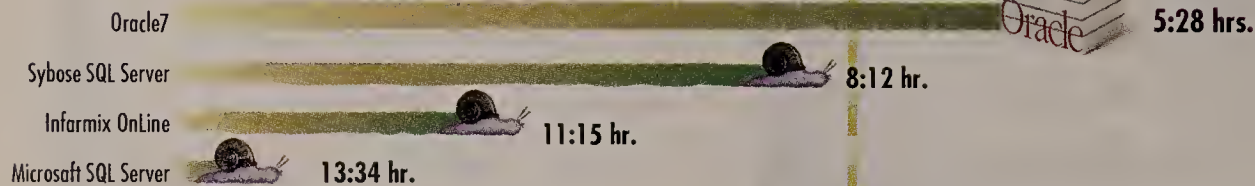
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LOAD AND INDEX

WORST

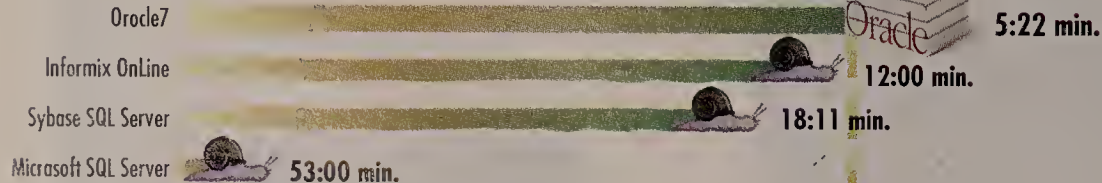
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